Industrial Finishing

Reg. U. S. Pat. Off.

An Independent Publication Devoted to the Finishing of Industrial Products

Vol. VI, No. 7 **MAY, 1930** **$2.00 a Year**

Contents of this Issue

From the Editor's Window 5

Feature Articles—

What You Ought to Know About Spray Guns, by F. W. Purdon.. 13
Designs and Finishes at Furniture Show, by James A. Williamson. 16
Tests and Experience With Aircraft Lacquer, by Denis O'Brien 19
A Beautiful Finish on Furniture, by F. W. Purdon..... 22
Finishing Early American Pine Furniture, by J. K. Cooper..... 30
What Increases Costs in Wood Finishing, by Thomas Shearer..... 32
Color Uniformity in Staining; Wood Finishing, by D. M. Martin.... 38
Commercial Body Finishing and Lettering, by J. C. Coyle..... 42
Printing Metal Signs by Silk Screen Process, by A. M. Sauer..... 46
Finishing Hard Maple, by Edward C. H. Rottmann..... 56
Cleaning and Bake Finishing Pressed Metal Parts, by W. H. Heerman 60
Crystallizing Lacquers in Beautiful Effects, by L. B. Miller..... 64

"Questions and Answers" Section 73

"New Materials and Equipment" Section 89

Shut-off Valve Coupling for Air Line..... 89
Portable Spray Outfit..... 89
New Spray Equipment..... 90
Spray Outfits Utilize Automobile as Compressor..... 93

Editorial 98

Short Articles

Lacquer Exhaust System; Floor Registers 18
Pfund Glossimeter Used by Du Pont 18
DeVilbiss President and Export Manager in Europe.... 18
Pulmosan Buys Patent for Respirator Cushion 28
Nichols Products' Chicago Branch Moves 37
H. Uehlinger Resigns from Hilo Varnish Corp..... 40
Alexander Milburn Co. Appoints New Chicago Manager.....40
Puhl & Hepper Mfg. Co.'s New Plant 40
American Cyanamid Co. to Sell Nitrocellulose 44
Furniture Finished Antique; Dust Effects 50
Air Receiver Design and Installation 55
Tumble Finishing 55
Turner Now With Marietta Paint & Color Co..... 55
Protecting and Cleaning Stained, Chapped Hands 58
New Executives of General Pneumatic Tool Corp..... 58
How Efficient Respirators Really Are 70
New Polish Line—Sumco Brand 70
Paasche Opens Milwaukee Sales & Service Branch..... 70
Represents Gilbert Spruance Co. in Jamestown District.. 86
Cook Detroit Branch Moved to New Plant 86
Dipping Large Work..... 94
Better Spray Guns..... 97

"Classified Advertising" Section 102

Advertisers' Index 103

Copyright 1930.

Published by PRACTICAL PUBLICATIONS, INC., 802 Wulsin Bldg., Indianapolis, Ind.

Eastern Representative
C. A. Larson
254 West 31st St.
New York
Phone, Penna. 9049

Western Representative
H. L. Watrous
611 Wrigley Bldg.,
Chicago
Phone, Superior 2429

Missouri Representative
G. H. Dirhold
610 Leather Trades Bldg.,
St. Louis
Phone, Central 5574

A rapid drying FILLER *

for use under lacquers

Over a MILLION Pounds Delivered to Users During 1929 . . . . and New Customers Added Daily!

Given the acid test of time and use in industry through the past 2 years, and new customers added daily, SPEE-D-DRY Wood Filler has proved a thoroughly dependable product, effecting savings in time, labor and floor space.

As a rapid drying filler, SPEE-D-DRY eliminates the slow spot in finishing departments, permitting application of first primer or lacquer coat within less than an hour.

Our free trial offer affords the opportunity to test it thoroughly before buying . . . . Ask us about it!

Penetrates deepest pores, will not pull out, does not raise grain, require sanding, shrink or crack. Is furnished in any color, transparent and natural. The beauty of walnut, mahogany, oak and other woods is greatly enhanced.

Speed in drying when needed, quality through and through in every gallon, SPEE-D-DRY Wood Filler gives the utmost satisfaction. Take advantage of the free trial offer.

E. T. STILLE & CO.
Main Office and Factory
2343 Greenview Ave. Chicago, Ill.
Southern Office and Factory, High Point, N. C.

*Patent Applied for, Serial No. 364,324

Stille's SPEE-D-DRY Wood Filler

From the Editor's Window

WHEN SPRING merges into summer and Nature's annual beautification program is in full swing, we are reminded frequently and impressively of a lot of things that have to do with finishing and decorating. For example, the thought comes to mind that everything we build or manufacture and place in service—if all these things were refinished, redecorated or restored as nearly as possible to their original state, or if they were completely replaced every spring, what pleasant and attractive surroundings we would have, and how much gainful employment there would be!

It could be done if expense budgets were adjusted to accommodate such a program; if every individual and organization planned to own only what they could afford to "Clean-Up and Paint-Up," or restore or replace every spring.

Of course, under favorable conditions of service many surfaces bearing a real quality finish will last for years, requiring perhaps only a periodic cleaning and polishing to restore their original appearance. That is as it should be.

The spring inspection for a thorough Clean-Up and Paint-Up program reveals how well or how poorly all goods have stood up to service and enables owners to check up on the claims of the manufacturers of the goods—or if it's something cheap, bearing no maker's name, they can judge as to how much of a bargain they really got. Then we might logically make the annual Clean-Up, Paint-Up Campaign also a Check-Up Campaign.

K. H. Rohr

Managing Editor

SEVERE
TESTS PROVE MILBURN SPRAYS SUPERIOR

IN actual tests with other Spray Guns conducted in an Industrial Maryland Plant MILBURN SPRAY GUNS afforded "Greater Production and Saved Considerable Time."

IN operation MILBURN SPRAYS use LESS AIR, thereby greatly reducing power consumption. It is a production gun, developed under severe tests — simple in design — all parts easily accessible — and VERY FAST making the MILBURN A SUPERIOR SPRAY GUN.

Write for Bulletin 567PS — Free upon Request

MILBURN PAINT SPRAY CORP.
1416-1428 West Baltimore Street
Baltimore Maryland

Centro-Ring Oiling--

one result of 33 years of compressor designing

Assurance against excess lubricating oil

IN THE Curtis Compressor, the high degree of protection against oil being carried into air lines is due primarily to the Centro-Ring Oiling System, an exclusive Curtis feature.

In Centro-Ring Oiling, neither the crankshaft nor connecting rod dips into the oil. A ring, running on the crankshaft, lifts oil to an undercut groove in the crankshaft. Then centrifugal force carries it, under pressure, first to a chamber within crankshaft, thence to distributing ribs in walls of crankcase. These ribs lead oil directly and in controlled amount to each friction point.

Honed cylinders, ground edge piston rings and the method of draining excess oil back from the piston give additional assurance that there will be no flooding of the cylinder.

It behooves any executive to seek this unusual protection against oil-spoiled spray paint jobs and against the explosion hazards set up by the presence of oil in tank.

CURTIS

CURTIS Pneumatic Machinery Company *St. Louis*

Curtis Pneumatic Mchy. Co.
1977 Kienlen Ave., St. Louis—5518-D Hudson Term., N. Y.

Please send information about_____

_____

*Name*_____

*Address*_____

P3

Kindly mention INDUSTRIAL FINISHING when writing advertisers

ZELLAC

Waterproofing WOODEN Products

Wood articles of every description that serve under conditions of weather exposure need the protection of the new Zellac Waterproof Grades of clear and pigmented lacquer. These grades add to the salability of your products! . . . Appropriate colors, long life, extreme durability, sturdiness, beauty, efficiency, economy, spray or dip speed application —all of the qualities of our regular Zellac Grades—plus the waterproof feature—at no extra cost! Because of their special adhesive properties, Zellac Waterproof Grades provide a film which indefinitely withstands moisture from the wood or on the surface of the finish. When used as an undercoat for Zellac Outdoor Exposure Grades, your wooden products may also be given an additional capacity to meet severest weather conditions. Though prepared in standardized form, all of these grades can be supplied to specially-developed formulas to meet any customer's requirements. Full particulars on request.

FOR METAL PRODUCTS use Zellac clear or pigmented Outdoor Exposure Grades.

ZELLER LACQUER MFG. CO., INC.
20 East 49th Street New York City

CHICAGO
LOS ANGELES
PORTLAND
DENVER
WICHITA
SAN FRANCISCO
SEATTLE

ZELLER

Something new

in paint spraying equipment...

THE MONOBLOC AIR COMPRESSOR

NEW...yet based on 40 years experience in building compressors...the Worthington Monobloc is a development of real importance to every spray painting shop.

Among the features of this compact self-contained unit are these:

Compressor is direct-connected to motor shaft... Alignment is fixed and independent of mounting on foundation... Roller bearings on motor shaft, crank shaft and crank pin... Equipped with time-proven Worthington Feather Valves.

The result is a quiet, durable, cool-running machine ...capable of delivering an uninterrupted supply of clean air, with a minimum of attention. Capacities, up to 7.2 cu. ft. per minute, 150 lb. pressure. Automatic control available.

Telephone or write for complete information

PUMPS
COMPRESSORS
Stationary and Portable
CONDENSERS
and Auxiliaries
DIESEL ENGINES
GAS ENGINES
FEEDWATER HEATERS
WATER, OIL and GASOLINE METERS
MULTI-V-DRIVES
CHROMIUM PLATING
Literature on request

R-50

WORTHINGTON PUMP AND MACHINERY CORPORATION

Works: Harrison, N. J. Cincinnati, Ohio Buffalo, N.Y. Holyoke, Mass.

Executive Offices: 2 Park Avenue, New York, N.Y

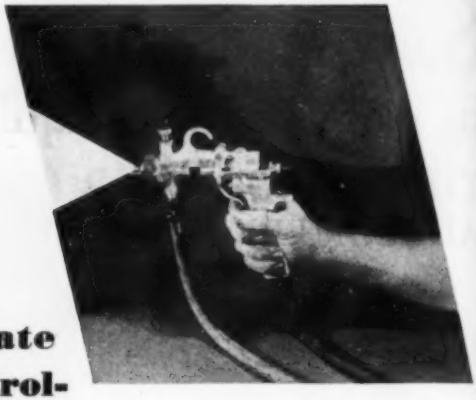
GENERAL OFFICES: HARRISON, N. J

District Sales Offices and Representatives:

ATLANTA	CHICAGO	DALLAS	EL PASO	LOS ANGELES	PHILADELPHIA	ST. PAUL	SEATTLE
BOSTON	CINCINNATI	DENVER	HOUSTON	NEW ORLEANS	PITTSBURGH	SALT LAKE CITY	TULSA
BUFFALO	CLEVELAND	DETROIT	KANSAS CITY	NEW YORK	ST. LOUIS	SAN FRANCISCO	WASHINGTON

Branch Offices or Representatives in Principal Cities of all Foreign Countries

WORTHINGTON



Accurate spray control- sensitive as your trigger fingers

The needle, nose and spreader of a Spraco gun form a carefully designed mechanism (patented) which accurately controls the flow of material *OVER THE ENTIRE TRAVEL OF THE NEEDLE.* It guarantees even distribution and a uniform shape down to the point when the needle closes; streaks and irregular spots or blobs are eliminated; smooth operation is insured.

As a result, trigger motion of a Spraco gun provides positive control of the spray and makes it easy to blend or taper off down to the finest shading. The 2-point support on the handle and correct balance of the gun leave two fingers perfectly free to operate the trigger. Consequently trigger action and control of the spray is extremely accurate and sensitive.

Please send a copy of Bulletin I-130 describing Spraco Guns and complete industrial finishing equipment.

Mr. _____

Firm _____

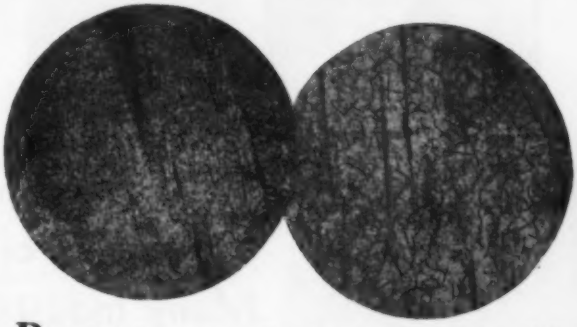
Street _____

City _____ State _____

SPRACO
INCORPORATED

116 Central Street Somerville, Mass.

3058



REZYL Lacquer Outlasts Spar Varnish

Which finish would your customer choose? Notice that even Spar Varnish cracked after seven months of exposure. Exposure under identical conditions scarcely touched the lacquer film formulated with Rezyls! The same kind of wood was used for both panels.

Many similar tests establish the extreme durability of Rezyl-formulated lacquers. Exposed to ultra-violet light, Rezyl lacquers, clear or pigmented, outlast other films as much as three to one.

In addition to imparting durability, Rezyls are true solvents of nitrocellulose. In all proportions they reduce the nitrocellulose requirements, and are entirely suitable for lacquers to be used for finishing and refinishing wood and metal for indoor and outdoor service. Many lacquer users are now getting these excellent results from Rezyls in their clear and pigmented lacquers.

Investigate Rezyls. Let us send you complete information on this and our other lacquer ingredients: Rezyl Balsams for plasticizing; Teglac for furniture lacquers; and Ethyl Lactate, a high-boiling solvent. Use the coupon for convenience.

Industrial Chemicals Division

American Cyanamid Company

535 Fifth Avenue New York

Sole Sales Agents for NITROCELLULOSE Manufactured by our Subsidiary AMERICAN POWDER CO.

AMERICAN CYANAMID COMPANY,
535 Fifth Avenue, New York.
I am interested in Rezyls, Balsams, Teglac, and/or Ethyl Lactate for the following applications:

( ) Sanding Sealer
( ) High Gloss Furniture Lacquer
( ) Clear Lacquer (refinishing automobiles, etc.)
( ) Pigmented lacquer for general industrial work
( ) Pigmented lacquer for automotive work
( ) .....

Name .....
Address .....
Mark for attention of .....

The Combined Experience of Many Industries

Look to DeVilbiss for

- Spray guns of various types and sizes
- Pressure feed paint tanks and containers
- Spray booths, exhaust fans and approved lighting fixtures
- Air compressing equipment
- Air transformers and accessories
- Air and fluid hose and connections
- Complete outfits from the smallest hand-operated units to the largest industrial installations

DEVILBISS Spray Painting Equipment is so outstandingly successful in Industrial Finishing operations because DeVilbiss specialized installations are designed in the light of a vast and comprehensive experience in all industries.

DeVilbiss Spray Finishing Equipment is constantly used in an almost infinite number of industries. Numerous widely varied operating conditions, production methods and finishing materials must be served.

DeVilbiss engineers are thus enabled to bring to the specific task a measureless wealth of proved knowledge and to apply to each individual case the composite experience of many.

Every day, almost, new knowledge becomes applicable to spray finishing operations in industry. It will pay you to learn what study and use have recently revealed to help you to put a bigger measure of economy and speed into your own finishing operation. It costs you nothing to talk to us about it.

DeVilbiss Spray-PAINTING FINISHING System

THE DEVILBISS COMPANY 294 Phillips Avenue, Toledo, Ohio

Sales and Service Branches

NEW YORK PHILADELPHIA CLEVELAND DETROIT INDIANAPOLIS
CHICAGO ST. LOUIS SAN FRANCISCO LOS ANGELES WINDSOR, ONT.

Direct factory representatives in all other territories

What You Ought to Know About Spray Guns

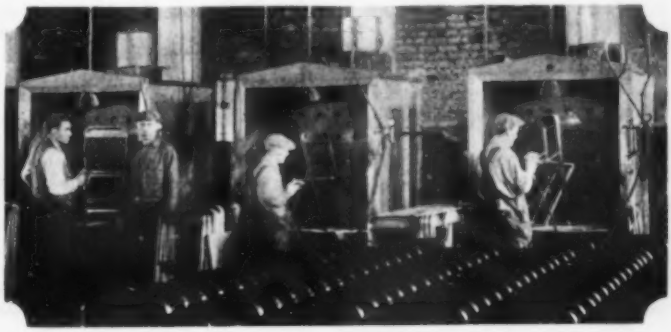
By
F. W. PURDON

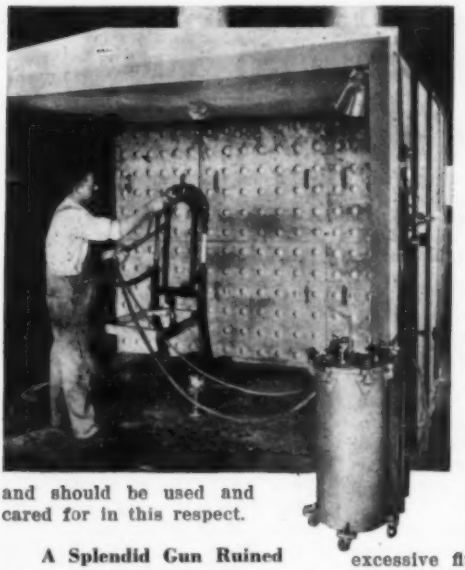
Listing from experience the causes of several troubles that occur when this splendid precision tool is abused or neglected, and explaining how to use, clean and service spray guns so they will remain in first class condition

THE APPLICATION of finishing coats by the modern and successful spray method may be greatly facilitated by a thorough understanding of the spray gun. In fact a proper knowledge of the spray gun is the first essential step toward producing satisfactory results when the spray gun is placed in use.

The first thing the operator should be taught is that the spray gun is a very finely constructed tool, and that it should be used and cared for as such if good results are to be expected when it is placed in use. Many types of spray guns are offered to the finisher today, with very little difference embodied in the general principle. Of course, each finisher will have his own opinion about which he regards as the most efficient tool for his class of work. Most of the makes have certain parts that are removable for cleaning purposes and it is positively not advisable to dismantle any other portion of the spray gun. The men who have these guns to use should be well instructed on this point.

As finely constructed as a spray gun is, there are many things which may happen that will contribute to unsatisfactory results. It is important to know what these troubles may be, what causes originate them and how to correct them. Too much stress cannot be given to the fact that the spray gun is a very fine tool,





and should be used and cared for in this respect.

A Splendid Gun Ruined

To give an illustration, I have in mind one of the most reliable makes of spray gun which, a few models back, was constructed with the air cap made of aluminum. Now it was essential that the opening in these air ports in this cap should be of the same diameter to produce a perfect fan-shaped spray. This particular gun had been used only a short time and the operator had not been instructed in the proper care of the gun. Every day when the gun was placed in use it would be clogged in the air port openings. To clean this gun, the operator would ram a piece of wire into the air ports. The air cap, being made of a soft metal, did not withstand this abuse.

The result was enlarged, uneven air ports in the air cap, producing a lop-sided spray which caused an uneven distribution of finishing material causing plenty of sags on upright work. This gun was condemned as "no good," and another make was placed into use. As a matter of fact, I have never found a gun to equal this make in performance, and I use no other.

To mention a few of the troubles one may encounter with every day use of the spray gun, we find something like this: Split or hollow spray, lop-sided or one-sided spray, jerking or fluttering spray, excessive mist, fluid leakage, excessive fluid, poor atomization —all of which will be found to result in poor work. Each has of itself a proper means for correction.

Split Spray; Streaky Finish

First let us consider the split spray; This will result in the material being distributed in a streaky manner, heavy coating on the outside edges of the fan spray and depositing very little material in the center. This is a condition that may be caused by improper adjustment of the spreader adjustment valve, or from excessive air pressure, blowing material from center of spray, one of these two causes will be found as the source of this trouble.

Lop-Sided Spray

Next we have the lop-sided or one-sided spray; this is a condition that causes the material

to be deposited heavy on one side of the fan-shaped spray, resulting in very uneven coating. This condition may be caused from a clogged air port on air cap, or it may be caused from a bent air port or a split or bent edge on the fluid tip. If the air port is clogged, do not under any circumstances try to clean it by probing it out with wire. Place the air cap in a solvent for the material being used, then blow it out with air.

If the gun has been dropped to the floor, and the air port has been turned to one side or bent, the remedy is a new air cap, as it is almost impossible to straighten the bent air port and line it up properly again. If a gun has been in use a great length of time, the constant wear of the fluid needle on the fluid tip will cause it to become thin and split. The remedy is a new fluid tip and possibly a new fluid needle.

Spitting Spray

The next source of trouble likely to be encounted is the jerky or fluttering spray; also called by some "spitting spray." When this trouble arises it is impossible to coat or spray at all. The fluid comes from the gun in jerks causing patchy spraying or coating on the work. The causes of the condition are many. First it may be from a clog or particle of dirt in the air or fluid line, or a loose fluid tip; or air leaking into the fluid line, and perhaps a worn fluid-tip gasket. All of these causes are easily corrected or eliminated.

Excess Mist; Leakage

Excessive mist around the work is another disturbing source of trouble. This is caused by too great air pressure or increased flow of material.

Next we have fluid leakage at point of fluid tip, causing fluid to drop on the work. This is very serious when large flats are being sprayed. The cause is generally a worn fluid needle or a fluid needle improperly adjusted. Fluid needles will be found to wear fast, especially where lacquer is being sprayed, and it is a good plan to have several extra needles for an emergency. This also brings to my mind the fact that one should have in stock for emergency purposes, one or more of each kind of springs which are used in the spray gun, as these sometimes break, and it means several days to send to the factory for the replacement.

Runs; Sags; Pebbly Finish

Trouble arising from excessive fluid is also a source of producing a very unsatisfactory spray coat. Almost all types of spray guns have facilities for regulating the flow of material. To understand this regulation of material flow properly is very essential in order to avoid runs, sags and overcoated surfaces. Runs and sags on any fine work are undesirable, and most finishers know the troubles arising from flooded or overcoated work, either with lacquer or varnish.

Poor atomization

causes the material to be sprayed upon the work in a pebbly condition, and, unless the material being sprayed has great flowing capacity, it will be found very undesirable; if the work is being sprayed upright it must by all means be corrected. It is a fault caused from too low air pressure or too heavy material.

To Make Troubles Disappear

Good spraying of finishing coats is always essential. All of these troubles which have been mentioned are real—that is, one may expect any or all of them to develop in the course of a day's work. The spray gun operator who has been taught the corrections for these troubles and who can recognize them when they do develop, and apply the proper correction instead of ruining a large number of pieces of work until discovered by his foreman, is the sprayman who is of real value to his concern. So one may see the necessity of instructing the spray hand in the operation of the spray gun in this respect, as well as telling him how to apply coats with the gun.

Always remember that the spray gun is a finely constructed tool and that it should receive the attention and care a tool of this kind deserves. The time required to do this will return many dollars in profit.

Designs and Finishes at Furniture Show

By JAMES A. WILLIAMSON

Highlights of show: Cherry used in a number of Early American reproductions, some antique-finished oak, more varnish finishes, diamond matching and attractive sunburst effects, cedar drawer bottoms, four-poster beds; Sheraton, Queen Anne and Adam leaders in period designs

THE ANNUAL Spring furniture exposition of the Jamestown Furniture Market Association was opened April 28th and continued with unabated interest for a two-week period, ending May 10th. Furniture at the exposition this year was marked by a somewhat closer attention to finishing details. It is noticeable that many of the case goods manufacturers have succeeded in producing unusually attractive results, with special attention to new and previously unused combinations.

Cherry; Antique Oak

Some "new" woods have made their appearance, chiefly cherry which yields itself to exceptional treatment. Walnut and mahogany, always standard, are again well represented, with maple following along. The rare and exotic woods are much less apparent this season than previously. The trend seems to be to mahogany first, walnut second, maple third and cherry fourth, although cherry pieces appear almost entirely

among early American reproductions.

This trend toward early American reproduction, by the way, is rapidly gaining pace, apparently to satisfy what seems to be a wide and fairly eager demand. Furniture in this style appears in mahogany, cherry, pine and maple.

An attempt has been made to introduce Early English carved oak, which seems to have met with some success. These pieces are finished antique to simulate English pieces centuries old. The finishing appears to be somewhat difficult and, as far as can be seen, only about one concern has mastered the technique of reproducing the true antique effects. Judged by its early success, we may expect to hear more from this style of furniture later.

Reports and observation indicate an increased use of paints and heavy varnishes among several furniture manufacturers.

Styles in Vogue

The lines shown include the usual standard bedroom and dining room suites, with here and there an occasional venture into something quite out of the ordinary. It is too early to judge of the success of these suites in a newer manner. "Moderne" appears in only one or two lines, and even here it has been greatly toned down.

Among the standard designs, Sheraton, Queene Anne, and Adam seem to hold forth. In bedroom lines, four-posters have rapidly forged to the front, forming a very important part of the Spring showing.

The upholstery lines show a remarkable advance, presenting probably the most beautiful array ever shown in this market. Covers are beautiful and range all the way from the more moderately priced denims to the highest grade linen frieze. A vast range of patterns is available. The standard mohairs also appear, as usual.

Bedroom Furniture

As has been indicated, walnut and mahogany are conspicuous in this line, with cherry and maple in the Colonial and Early American suites working to the front. Finishes are evident of the finest workmanship and deliberate care. Diamond matching is noticeable as at the market last Spring. Mouldings and carvings in sunburst effects are seen, as well as in other new designs. Painted furniture carries over with changes of designs in the suites which enhance their beauty. In fact, in every display, there seems to have been a canny eye cast on appeal—a touching of the pulse of public opinion—and many of the suites are irresistible. Everywhere is seen subtle flattery to the buying public.

Dining Room

Like the bedroom furniture, design has been laid to ensnare the furniture buying public, but in a worthy way by employing more effective finishing. Sheraton, Queene Anne, and Adam cannot escape notice by their prominence in this line. The Moderne, when employed, usually has traceable period outlines.

Among the desks and secretaries mahogany continues as a general favorite, featuring the Governor Winthrop design and its out croppings as well as individual designs which do not claim any "period." Automatic slides are again in evidence, replacing the old form of slides. Dustproof drawers have become a feature of every manu-

facturer's product. In many suites the drawer bottoms are made of cedar, which adds to the attractiveness and perhaps the utility of the articles.

Exhibitors report that the outlook for the present market is exceptionally bright and that prospects of improved conditions in the industry are evident.

Lacquer Exhaust System; Floor Registers

Have you ever noticed that lacquer fumes settle to the floor of the room, being heavier than air? Now why is it that in so many finishing rooms we see exhaust fans in the wall 6 or 7-ft. from the floor—and perhaps some of the executives wonder why there are such heavy fumes in the room most of the time? To my way of thinking, the only practical arrangement for exhaust fans is along the lines of one I have seen in use and which I know to be entirely satisfactory in actual practice.

Whether the room is a large drying room or just a small paint-mixing room, the principle will be the same. Floor registers are installed at and near the middle of the room, and are connected to large ventilation piping below the floor—piping hung close to the ceiling of the next floor below and extending to a suitable outlet in the nearest outside wall. This piping, of course, should be constructed and arranged in accordance with modern ventilating practice, the outlet of the trunk line pipe having a suitable exhaust fan to pull the fumes out of the finishing rooms and force them out of the building.

Of course, when air is taken from a room, it must be replaced. Arrangements should be made for fresh air to be supplied by intake pipes in the finishing rooms. The fresh air piping should be arranged, if possible, so that fresh air will enter the building on different sides—preferably 3 or 4-ft. from the floor—with an elbow just inside the building and a continuation of the pipe down to about 6 or 10-in. from the floor. In this way the fresh air can be obtained without causing a draft. A damper installed in each pipe can be turned to prevent any draft that might come in from one side of the building on a windy day.

Several of these intake pipes must be installed, so there will be as much air coming in as the exhaust fan and piping removes; otherwise the circulation will be unsatisfactory.—E. Randall.

Pfund Glossimeter Used By Du Pont

An article to appear in the current issue of the Du Pont Magazine is entitled, "How Glossy Is Glossy" by D. V. Gregory and L. A. Wetlaufer of the Du Pont laboratory staff. This article describes and illustrates the Pfund glossimeter, an instrument to measure gloss standards in finishes. This instrument was developed by Dr. A. H. Pfund, associate professor of Physics at Johns Hopkins University and a member of the consulting staff of the Du Pont Co.

DeVilbiss President and Export Manager in Europe

Expansion of the overseas business of The DeVilbiss Co., 294 Phillips Ave., Toledo, Ohio, has called President Allen Gutchess and Export Manager Rex Wells to Europe where they will be for several weeks working with the executives in charge of the London and Paris factories and sales offices of the DeVilbiss Co. Increasing industrial activity in Europe is reflected in greater demands upon the DeVilbiss organization serving overseas markets, according to an announcement by this Company.

Tests and Experience with Aircraft Lacquer

By
DENIS O'BRIEN

Relating the results of some interesting experience, observation and tests in connection with the finishes used on aircraft—all of which explains why the author favors certain finishing materials for safety, endurance and beauty

"If the old fabric finish is cracked or weathered too badly, the covering will be condemned by the Department of Commerce inspectors."

THE ABOVE is quoted from a special sales bulletin issued by a firm that has devoted considerable time in research development in the airplane finishing field. But why stop at fabric? Why not include the deterioration of metal parts such as tubing, control cables, etc? Certainly the integral parts of an airplane are as important as the fabric which only serves as a cover for such parts.

An inspector of aeronautics of the U. S. Department of Commerce can ground any aircraft where, in his opinion, the paint condition is in such a state as to make further flying hazardous. Manufacturers of aircraft are striving for maximum efficiency in finish, and are glad to pay out real money to attain that goal.

Up until about two years ago dope was considered the only finish for aircraft fabric; the dope was clear and pigmented . . . a coat of gloss added. Then certain manufacturers of aircraft finishing materials formulated a lacquer bodied with plasticizers to insure the flexibility so necessary to withstand the stresses and strains.

Competition became rife among manufacturers of materials to produce a higher gloss than their competitors, and in consequence everything was sacrificed for gloss. As a result, on some of the airplanes placed on the market, the fabric cracked and "ringwormed," and the Department of Commerce inspectors worked overtime grounding them.

Today some concerns that once declared lacquer finishes were the one best bet, have about-faced and are now condemning the lacquer finish, and are advocating dope. They try to tell us now that lac-

quer is all wrong, yet for two years they recommended it as a perfect finish.

What's it all about? What is wrong with lacquer as a finish?

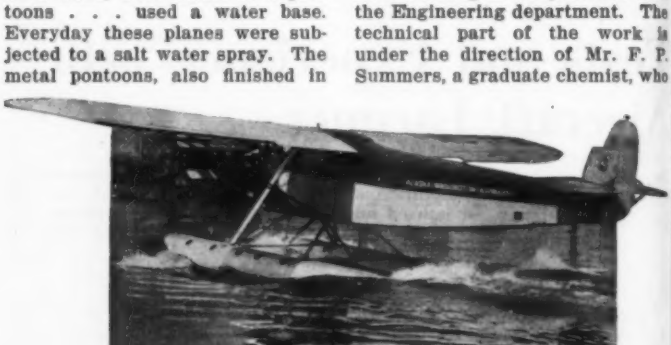
Lacquered Seaplanes Inspected

Recently I inspected a number of airplanes finished with lacquer. These planes, engaged in coastwise trade, were fitted with pontoons . . . used a water base. Everyday these planes were subjected to a salt water spray. The metal pontoons, also finished in lacquer, were always submerged in water except when the machines were flying.

These planes had been in active service for a period of ten months when I inspected them. I made a very minute examination but found no evidence of cracked or ring-wormed finish on the fabric.

Knowing the severe service to which these planes were subjected and holding no brief for the manufacturer of this particular lacquer, I am not going to listen to the condemnation of lacquer as a finish—just because one or two brands of lacquer "fell down." A lacquer that shows no sign of cracking after one year's service in hail, rain, snow, fog and sun is a mighty fine article, and it will take more than mere talk to convince me that lacquer is wrong as a finishing material for aircraft.

In the Fairchild plant* at Farmingdale, Long Island, New York, research work along better paint lines is conducted by the practical man working in conjunction with the Engineering department. The technical part of the work is under the direction of Mr. F. P. Summers, a graduate chemist, who was for some time chemist and metallurgist with the U. S. Army air force at McCook field, Dayton, Ohio. Safety is the prime motive in the selection of finishing materials at the Fairchild plant.



A Fairchild 71, fitted with pontoons, coming in to base at Amityville, L. I., N. Y. The ship is 33-ft. tail down; pontoons measure 20-ft. 9-in. over all.

Finish For Safety; Beauty

Lacquer gave the aircraft industry what it needed, namely an opportunity to add to the beauty of the planes, with an honest-to-goodness, high-gloss, reliable, foolproof finish. Irrespective of what claims may be made for pigmented dope, in the final analysis, the finish obtained will be

*Present output, 14 planes per week.

a semi-gloss unless the dope is treated to a coat of reduced gloss solution. If the latter course is adopted then disaster will result.

The aircraft industry has its attending complexities in the finishing line—more so I believe than any other branch of the industrial finishing field. In this industry we have to contend with steel, aluminum, duralumin, cotton fabric, woods of various kinds, and leather. If all of these materials that go to make an airplane could be finished with the one and same material, the finishing problem would not be vexatious.

Finishing Materials Used

In order to finish an airplane satisfactorily, we must use oil, oil paints, japan colors, aluminum powder, dope, lacquer, solvents, shellac, varnish, wood filler, industrial cleaners and masking tape. With the possible exception of masking tape, these materials are generally selected on a basis of their safety factor.

The reasons for using paints, dopes and lacquers on aircraft are: first, as a protective coating to preserve or continue the original safety of the plane; and second, for the decorative features embodying beauty of color to make sales easier.

Lacquers today are formulated with synthetic gums which impart to them a wonderful flexibility, and they are ideal as a finish over a doped surface. Airplane manufacturers took a chance with the lacquer manufacturers, and risked a loss of business in the event of failure. They placed at the disposal of the paint firms thousands of dollars worth of aircraft equipment for experimental and research work.

Lacquer Predominates

Aircraft manufacturers have educated their finishing forces along the lines of lacquer finish. Spray equipment, especially adapted for the use of lacquer, was purchased and a wider array of colors were added to the scheme of finish. Lacquer has given that brilliant finish the aircraft industry sought for during years of experimenting. Airplane manufacturers tried varnish over dope, clear lacquer over dope, and gloss solution, retarders and reducer over dope; these all failed, but lacquer (properly formulated and used) succeeded.

Remember though, that if the lacquer supplied by one firm "goes bad," do not condemn all lacquers, or an entire industry; just look through the pages of INDUSTRIAL FINISHING, select some other firm, and I'll wager you will find a number of lacquers that will not fail.

A Fairchild 71 on the Fairchild flying field at Farmingdale, Long Island, N. Y.

A Beautiful Finish on Furniture

By
F. W. PURDON

Foreman Finisher calls attention to the cabinet work and to every operation in the finishing process in pointing out what it takes to make or spoil a really high-class finish—which makes or breaks ultimate sales

TODAY, WHEN a person desires to purchase an article of furniture for the home or office, the final selection, in most cases, is controlled by the appearance of the article—and this appearance is created by the color and finish which is the dress attracting the eye through the beauty it carries. Articles that command attention and sell are those which first of all are pleasing to the eye. Of course, other qualifications are considered, but first there is the appearance factor, whether one is purchasing a motor car, furniture, clothes or anything else, there being two or more similar articles to choose from. Final selection or purchase is largely influenced by the beauty it registers through the eye.

First—Attention to Details

Attention given to details in each wood-finishing operation brings out an added mark of beauty in the finished product, thereby increasing sales—which today are what most manufacturers are concerned in.

Many operations are connected with the finishing of a fine article of furniture. It is the amount of attention given to the small details of each operation that makes it possible to produce an unsightly or inferior finish, or a finish with quality and beauty. This rule applies to those manufacturing just the ordinary "bread and butter" line of furniture, as well as to manufacturers of the very finest furniture.

Few people really understand construction in furniture, and those who do not—and they are largely in the majority—purchase from the appeal of beauty as portrayed to them by the finish.

Many beautifully designed and well finished pieces of furniture are available to choose from today. Most of it is gorgeous, but again we find many well designed articles that are far from being objects of beauty, due to the fact that the finish has been neglected, or no attention has been given to details of each finishing operation.

There is no excuse for these cheap appearing finishes. It cannot be from lack of knowledge, because the finisher today has at his fingers tips an inexhaustible source of finishing information, through such channels as finishing-supply houses and the manufacturers of lacquer and varnish. Trained service men are constantly ready to supply the lacking knowledge, if there be such need. So, to my mind, the only excuse that possibly can be made

PYROXYLIN LACQUERS

THAT HOLD CUSTOMER CONFIDENCE

Accepted for every use throughout industry as the highest standard of lacquer excellence since 1884.

THE pioneering spirit which has lifted Zapon Pyroxylin Lacquers to their present pinnacle of leadership, made them a standard bearer of matchless uniformity, quality and economy, is consistently pledged to a policy of progress that will hold customer confidence by sheer reason of superiority.

Absolute control over basic raw materials and chemical processes give Zapon an unrivaled advantage in continuous advancement, service and leadership.

The facilities of our Service Laboratory equip us to work out any finishing problem and enable us to render you valuable assistance without cost.

ZAPON

REG. U.S. PAT. OFF.

THE ZAPON COMPANY

STAMFORD CONN.

for these conditions is carelessness in the attention to detail work in the process of finishing.

Curse of Mechanical Routine

Considering the matter of carelessness, we find it is caused generally by workmen becoming mechanical; they perform a certain amount of their labor mechanically, through a method of working produced by habit. Generally speaking, this is wrong in wood finishing. Take ten articles to be finished, say of mahogany: On most of the operations, such as staining, toning color, sanding coats and rubbing, each piece must be handled a little differently. Each article of the ten pieces being finished contains various pieces of wood of different texture, some pieces being hard and close grained, while others are soft and possibly now and then even spongy; some pieces of wood are naturally light in color, while others are dark. All of these conditions and many others create a positive reason why it is not possible to perform the work on each one in exactly the same manner. It is necessary to treat each one a little differently in the details of operations. So a little checking-up process occasionally will do much to eradicate this mechanical or habitual method of finishing.

The Cabinet Work

One of the chief causes for a poor finish is carelessness in the quality of cabinet work. It is simply not possible to cover a multitude of sins in cabinet-work with the finish, and expect the article to be pleasing to the eye and perfectly finished. To produce a good finish the cabinet work or the joinery and smoothing of the wood must be perfect—or closely approach perfection. An extra fifty cents spent to do this is the means of saving dollars during the finishing process. Every advantage is to be gained and nothing can be lost by having the woodwork right before the finish is started.

Wood surfaces to be finished should be sanded and surfaced properly, free from scratches, bruises, grease spots, glue spots, crayon marks, and such defects as checks, blisters, slivers, etc., otherwise, later in the finishing process these will show up unsightly or have to be removed at an extra expense. All such minor defects on the surfaces to be finished mean a deduction from the quality of the finish when complete.

First Slip—Staining

Generally, the first slip in the process of wood finishing is the staining operation. There are numerous types of stains but where real fine work is to be considered, I prefer water stains made with acid colors. Even then, when the finest stain is employed, a certain amount of carefulness must be observed in its application. The article being stained must be stained evenly, the hard wood must receive more stain than the softer portions, producing an even color which is necessary for good work. Stain applied in streaks or blotches—dark here, light there—detracts from the quality of the finish or creates the added expense of correction later.

Sufficient time for water stain coats to dry is important. If this is not allowed, a muddy cast, gray pores and many other ills will result. Sizing the water stain coat when dry with a coat of orange shellac, used very thin, is

Don't blame your *equipment!*

When the *coating* isn't right. Put the problem up to the finish experts in the Impervious laboratory. You may need a special formula for the cheapest best finishing of your particular product.

Every recommended Impervious formula is demonstrated on the product for which it is prepared. Our staff of technicians is available to you in working out the best finish for your individual requirements.

Address your inquiries to

IMPERVIOUS VARNISH COMPANY

Manufacturers Industrial Finishes

General Office

436 Seventh Ave., Koppers Bldg., Pittsburgh, Pa.

Works—Rochester, Penna.

Impervious

protective coatings
any surface — any product

Varnishes, Enamels, Pyroxylin Lacquers, Electric Insulating Varnishes

also important. This size should never be allowed to stand in tin or other metal containers, as it will darken and, when applied to the work, will cause streaks and blotches and subtract much from the richness of color.

The size coat is used over the water stain coat to stiffen the nap or fiber of the wood, which is raised by the water stain, so that it can be cut off easily with fine sandpaper, without destroying the stain coat. Sanding the size coat is important and should be done carefully. The surfaces should be sanded smooth, but care must be taken to avoid cutting through the stain, especially on edges, mouldings, etc. Strict attention must be given to the sanding in corners, along mouldings, etc. If not sanded properly, it is impossible to clean off the filler from these places, after they are filled. This means a muddy appearance in the final finish.

Filling—The Foundation

Filling represents the foundation for the finishing coats, which may be either shellac, lacquer or varnish. Filler when applied, should be well brushed, as this helps press it into the pores of the wood. It must be allowed to flatten, and then it should be well padded into the pores, completely filling them. After this is done, the excess filler should be wiped clean from the work. Any excess filler left on the surface is a sure source of trouble. For padding filler, nothing is better than burlap, especially a piece that has been used and is coated with filler. It makes a flexible and serviceable pad. Filling done improperly, that is wood not filled, filler left on surface of work—all subtract from the quality of the finish.

Wood that is smoothed in the white then stained, sized, sanded and filled properly, will present a perfect surface for the finishing coats.

After the filler has been allowed to dry (air dry 48 hours, kiln dry 24 hours), the surfaces should be toned or touched up. This consists of an evening up of color, a close inspection and remedy for other defects. A coat of thin shellac over the filler is then in order. This will act as a sealer; it brings out the color and helps to hold up the finishing coats, either lacquer or varnish.

Where Final Finish Slips

The ills resulting from the application of the finishing coats (varnish or lacquer) applied carelessly are many—runs, sags, fat edges, trapped air, dirty coats, uneven coats; all these represent serious defects which cause no end of trouble when the work is sent to the rubbing operation.

Spray equipment should receive particular attention; it should be kept clean and in A No. 1 working condition. Dirty or run-down equipment means poor and unsatisfactory work in the coating rooms. Strict adherence to the general principles of good housekeeping will help to eliminate much trouble in this respect. Clean spray equipment, coats applied properly, time allowed for proper drying between coats, work sanded properly between coats—all this will show a profit to the work in dollars and cents, and this is what the manufacturer and finisher are interested in.

Work improperly done, no attention paid to details, minor defects, etc.—this all reduces the quality of the finish and raises the cost of finishing. It remains a mystery to me why one sees a

Beauty . . . *too perfect to have* "jest growed"

This perfect bloom and the enduring beauty of du Pont finishes both result from the unceasing care of experts.

THE flawless beauty of the orchid gives no hint of the ceaseless care and work that produced it. From the time the seeds form in the pod, until the bloom matures eight years later, experts watch every hour of its growth, guard every step of its development.

Nor is there any element of chance in the perfecting of a du Pont finish. Finishing materials in cans or drums that bear a du Pont trade mark are the result of years of effort on the part of expert chemists and engineers. Constant research, countless tests, experiments without end — these give Duco, and other du Pont finishes, their lasting beauty.

Second to none in the world are the research and development organization, the laboratory and manufacturing facilities, the vast du Pont resources that give Duco, Du Lux Varnishes, du Pont Wood Lacquers, 1985 Sealer and other du Pont finishes their prestige and leadership.

8 QUICK FACTS
that explain the leadership of du Pont finishes

1. Vast research and development organization.
2. Rigid laboratory control of all products.
3. Unequalled manufacturing facilities.
4. Technical chemical service.
5. Technical engineering service.
6. Sales and service organization.
7. Warehouse and delivery service.
8. Color advisory service.

E. I. DU PONT DE NEMOURS & CO., Inc.
Industrial Finishes Division, Parlin, N. J.
Chicago, Ill., San Francisco, Cal., Everett, Mass.,
Canadian Industries Limited, Paint and Varnish Division, Toronto, Ontario, Canada

The Duco Oval on tag or seal helps buyers identify a Duco finish on many leading lines of furniture.

DUCO . . . made only by du Pont

well designed and constructed piece of furniture with the sales value reduced because the article is poorly finished, when a just amount of attention paid to the finishing would increase the possibility of sales 50 to 75%. Compare two like articles of furniture—one having a fine pleasing color, finished properly, representing true artisan ability, with the other which has a washed-out, muddy color, light edges, poor coating, fat edges or sags here and there, pull-outs in the rubbing, pumice in corners and rough edges. You have seen these kind of pieces, finished to save a few cents. They have all the appearances of a cheap, amateurish job, which would you purchase? Naturally you purchase the first. You feel real value for money expended.

Last—Attention to Details

There is much to be gained by proper attention being paid to details in wood finishing. If our very fine motor car, the finish on which we admire, were slapped through the finishing process and sent out as some of the furniture is (which we see every day), how long do you suppose they would sell these cars along side of a car finished as most of the cars are today.

An article of furniture does not have to be constructed of the finest type of mahogany or walnut to be made into a beautiful piece. Maple, birch, beech, and gum are all fine cabinet woods and will hold and take a good finish; also, they appear well in various colors, but one must give attention to the finish of these woods where they are used with mahogany or walnut. An article of furniture may have a mahogany or walnut top and drawer fronts, with birch or gum legs and rails, and still be finished richly and be much more pleasing to the eye and have the same durability as though it were genuine mahogany or walnut. It's just a question of the proper attention being given to the detail work in the finishing operations. There is positively no need of skimping the finish to obtain production—not now with the many revolutionary methods and materials that our modern time has to offer, such as the new non-grain raising, fast to light, acid stain (I refer to acid colors), the three-hour wood fillers, lacquer base sealers or sanding surfaces, gloss or flat lacquers and improved quick-drying varnishes. It is possible to produce a finish that one may be proud of, doing it in one day with these new materials as compared with a week or more under the older methods—and secure more durability and lasting beauty.

So, where do we find the excuse, other than just carelessness, for the shabby appearance of many pieces of furniture which come before our observation every day. To me the answer seems to be in the fact that there is a lack of attention paid to the small details before and during the finishing process, fostered by a feeling of "Oh H—! that's good enough: let her ride."

Manufacturers who style their lines well, profit.

Pulmosan Buys Patent for Respirator Cushion

The Pulmosan Safety Equipment Corp., 174 Johnson St., Brooklyn, N. Y., announces.

"We have just purchased outright, Patent No. 1,710,160 covering respirators with non-inflated cushions. The cushion on the Pulmosan 'Dustpruf' respirator is of a non-blooming, non-toxic, non-irritating pure gum rubber."

A NEW FLAT VARNISH that doesn't flash, highlight or streak

Satisfactory results from a flat varnish require that it possess the following essentials:

1—Uniform Flatness
2—Non-Flashing (glossy streaks)
3—Transparency (non-clouding of wood grain)
4—Not Pigmented (no settling)
5—Good Building
6—Fast, Hard Dry

You will find the ideal combination of these features in Murphy Flat Varnish No. 22.

It is unusually resistant to poor drying weather. You can handle work in a few hours and rely upon having a "rock hard" finish overnight.

It duplicates the distinctive flatness you get with a real water and pumice rub—with the important exception that No. 22 enhances the beauty of the wood grain that the thousands of scratches produced in actual rubbing, partly cloud.

Where speed in application and shipment and quality of finish are requisites, you should certainly give Murphy Flat Varnish No. 22 an immediate trial.

Order a quantity now or write to us for further information or a demonstration.

MURPHY VARNISH COMPANY
Newark San Francisco Chicago
Essex Varnish Company, Newark
(Associate Company) *Baking Material Specialists*

MURPHY FLAT VARNISH No. 22

Murphy Flat Varnish No. 23
Flat Varnish No. 23 possesses all the qualities of uniformity and clarity of No. 22, but dries to a soft sheen.

Murphy Flat Varnish No. 24
Flat Varnish No. 24 dries to a high semi-gloss but otherwise shares the characteristics of No. 22 and No. 23.

Finishing Early American Pine Furniture

By
J. K. COOPER

How the finisher can reproduce the mellowness and true aged appearance on pine furniture in genuine or imitation of the Early American period, which is now so much in demand by collectors and dealers

ANTIQUE or Early American white pine furniture is rapidly being picked up from every nook and corner by collectors, agents and dealers. The demand for those old corner cupboards, blanket chests, tables of various kinds, old paneling and mantels is so insistent that antique dealers are reproducing them in order to supply imitations of these antique articles.

The finisher of a presentable imitation of antique white pine furniture or woodwork is confronted with a real task. The old pine, originally used in the genuine antiques, was a mellow yellow color when finished—sometimes called pumpkin pine. Often, it runs to a color like our present day cedar. A finished piece of our present pine, as we finish it today, looks as if it had gone through a bleaching process when compared with those genuine old pieces, but there are various ways of finishing new pine to reproduce the true aged appearance.

Antique Stain for Pine

A brush coat of strong ammonia will give the pine an aged effect, but this operation will be very unpleasant for the finisher unless he uses a fume mask. Another process, which is much simpler, is to apply a stain coat made of a glue and water solution colored with dry Venetian red, raw sienna and burnt umber. The quantity of each of these colors must be judged according to the color of the wood—whether it is a red or yellow color. This stain must be wiped off before all of it is absorbed, to prevent it from making the wood too dark.

Sometimes orange shellac can be used to get a desirable shade. After several coats have been put on, the color gradually becomes deeper and, by the addition of a little light oak stain, soluble in alcohol, it will darken faster. If a red color is wanted, a touch of light mahogany stain, soluble in alcohol, should be added to the orange shellac.

Orange shellac can be used as a coating material by adding a waterproof lacquer to it. This gives it a heavier body. Three or four coats will produce a satisfactory job with this mixture, after which it must be rubbed dull—the duller the better. The finisher will find that fine steel wool dipped in water with a little rubbing oil, will help to produce a satisfactory dull-rubbed finish. After the rubbing operation, I recommend the application of a thin coat of liquid wax followed by

YOU MAY USE TWO OR 2,000,000 GALLONS OF "SLICKOTE"

A Real "Honest to Goodness" Practical Flat Drying Varnish.

You Will Find It Always Uniform In Its

SMOOTHNESS
FULL VARNISH BODY
TRANSPARENCY
OVER NIGHT HARDENING
24-HOUR OIL RUBBING

You Be the Judge

Your request now (on your business stationery) will bring you a 5-gallon sample at the drum price.

THE GILBERT SPRUANCE COMPANY

Office and Works:
Richmond and Tioga Streets
PHILADELPHIA, PA.

polishing the surfaces immediately.

Many of the genuine old pieces contained numerous puttied nail holes—mute evidence of the use of early hand-made nails—and to get this realistic antique effect, many large nail holes must be puttied. A mixture of orange shellac and whiting makes a suitable putty for filling the holes. Press this into the holes and sand after it is dry; then stain. If any of these holes still show improperly, they may be touched with a little colored lacquer. Some parts may need a red touch to get the true effect.

Before starting this work, make samples and get the color wanted. Sometimes it is necessary to apply a glaze or antique coat of burnt umber, or some color that is dark. Rub this immediately, cleaning nearly all of it off. Regardless of what method is used to finish antique pine furniture, it must be rubbed dull to get the true worn and aged appearance. Pine is an easy wood to finish; it also is very attractive in appearance when properly finished. The popularity of the Colonial style in new homes has contributed to the demand for this Early American pine woodwork and furniture in these finishes, which appear to have become mellow with age.

What Increases Costs in Wood Finishing

By THOMAS SHEARER

Revealing certain true conditions that prevail in many woodworking factories and which, unknown to the management, impose an unfair burden upon the finishing department, causing either exorbitant costs or poor work, and often some of both

TO SECURE a good finish on any wood surface, it is essential to have the wood right when it comes to the finishing department. There are several things to consider in connection with having the wood in suitable condition. Many times an excellent finish has been ruined by jams or bruises caused through carelessness of inspection and handling in the cabinet department.

The presence of these bruises constitutes one of the problems that causes plenty of trouble to the finisher. Some of them are not so noticeable on the bare wood surface, but the finish magnifies them so much that it is necessary to remove the finish and start over again; then, through excessive handling and repairing, this makes it possible for other things to happen to the finish—possibly a few more jams—so anyone can see what a lot of trouble these little bruises give the finisher.

Sander Marks

It is important that the wood be sanded smoothly, and that it is free from sandpaper scratches.

ADVERTISING PAGES REMOVED

Plenty of money is spent in the finishing department on account of poor sanding in the cabinet department. A piece of work may go through the regular finishing process looking as though it were all right but after rubbing, the results of poor sanding show up. It is necessary, then, to sand the surface and give it another coat of varnish or lacquer—whatever is being used. If this same piece of work had been sanded properly in the white, the finisher would be able to produce a better finish—with time, labor and material saved.

Crayon Marks; Glue Spots

Then there are crayon marks carelessly overlooked; these give the finisher unlimited repairing to do. Also, checked and blistered veneer causes scattered repairs to be necessary throughout the finishing department, besides hindering the production and shipping.

The presence of glue spots is another hazard the finisher has to contend with, and their existence is sure to show on a finished piece of work. Glue "doesn't associate" agreeably with the materials used in the finishing process; it stays its natural color and doesn't seem to take any kind of finish. Another thing about glue: It fills the pores in the wood and makes it more difficult to finish.

Crude Patches; Defects

The finisher gets a variety of patch work that is well worth mentioning. Some woodworkers think the finisher is an artist who can paint flakes in the wood, grain it and make any kind of a patch unnoticeable. Of course, some striping can be done to camouflage this patch work, but the woodworkers overdo this and, if someone didn't call a halt, they would fill the finishing department with patches quite impossible to fix.

These are some of the things that could be eliminated in the cabinet department. Sending the work with defects into the finishing department is sometimes called "Passing the Buck." This is probably true, but a lot depends on the workmen who pass the work on to the finishing department. Their judgment is poor or else they overestimate the magic qualities of finishing materials. They seem to think the finisher has some sort of a magic power for filling and covering these defects in the wood. A broader knowledge of what defects show up on the finished wood—this should be made a real part of the cabinetmakers' training.

Finishing foremen should overcome these difficulties by placing a man to inspect this work coming to the finishing department. I know this will create quite a saving—provided the inspecting workman knows quality cabinet work. It is the training of the men that make a success of any department.

Testing and interpreting public demand is a step toward obtaining appealing finishes.

Nichols Products' Chicago Branch Moves

The Nichols Products Corp., (Mfr. of oil & gas-fired heaters, Sadwith Panel ovens, industrial heating systems, spray booths, & lacquer & veneer dryers) 12953 Greeley Ave., Detroit, Mich. announces the removal of the Chicago branch office to 201 N. Wells St., Chicago.

Offices are also maintained at 122 E. 42nd St., New York City; 1425 Guarantee Title Bldg., Cleveland, Ohio; and 519 American Bank Bldg., Detroit.

Color Uniformity in Staining; Wood Finishing

By
D. M. MARTIN

Experienced wood finisher points out several causes for non-uniformity in wood finishing and reveals what equipment and methods are needed to prevent future trouble of this kind

IN A furniture manufacturing organization, one of the most frequent criticisms from the sales department is that the finishing department doesn't maintain a uniform color, once a standard color is produced and approved—that when the finishing room gets started into production the color begins to vary and a piece produced one month will not match a similar piece finished a month later.

When the finishing foreman is appraised of this fact he perhaps makes a perfunctory check and declares that the same formula is still being used, and says he cannot understand why there should be such a change. The fact remains, however, that there is a lack of uniformity in the color produced by many finishing rooms.

I have been confronted with this situation in several plants and have investigated to find the cause. My investigation revealed that there are several causes, and on removing or correcting every cause, the desired result can be obtained. The most frequent trouble is due to the lack of accurate measuring devices for weighing the stain ingredients. In several cases, guessing is substituted for actual weighing.

For example, I know of instances where the formula called for 25-lbs. of raw sienna, but instead of actually weighing out this amount, one-fourth of a 100-lb. can was guessed at. When one gallon of a solvent was required, that meant just "so much" in a 5-gallon can. Stain powders, to be included according to a specified number of ounces, were weighed out on a scale showing only ¼-lb. divisions.

Something Different in ART FINISHES

Opex Needlepoint

It's difficult to describe the intriguing witchery of these new Opex Damask and Opex Needlepoint Finishes—but if Jack Frost laid down his conventional white and used *color*, then you would have some idea of these two new surfaces. Manufacturers are going to be quick to see the added sales value in these modernistic finishes that are "different."

Some Suggested Uses

Office Appliances
Radios
Metal Furniture
Metal Office Partitions
Containers
Display Stands

A single coat job

In addition to *beauty* these new finishes offer real production economies, too.

A single coat over a well cleaned surface does the job. No undercoat necessary! The characteristics of the film tend to conceal any imperfections in the surface.

Can be applied to iron, steel, aluminum, brass, copper, Galvaneel, glass, or hard, close grained wood. Available in a variety of colors. Applied by spraying but may also be dipped.

Write for full information, or inquire at one of the many Sherwin-Williams offices. The Sherwin-Williams Co., Dept. 708, 601 Canal Road, N. W., Cleveland, Ohio.

SHERWIN-WILLIAMS

LACQUERS ENAMELS OPEX

MODERNISTIC FINISHES

Here the purchase and use of a balance scale and some graduated measuring cans, caused the complaints about "lack of uniformity" to suddenly stop.

Another time the cause was found to be that of the purchasing department shopping around when buying umbers, siennas, ochers, etc., and getting varying shades and various degrees of strength.

Again, where oil stain was being used in a tank, one batch would be added to another.

The same tank of stain was used over a period of a week or more, the stain naturally deepening as the naphtha, etc., evaporated. The replacement of evaporated solvents in a large stain tank was unheard of, in another case.

In a large store-fixture plant it was found, upon investigation, that the strength of a water stain powder varied in different shipments. In another finishing room, during a cost reduction campaign, orange shellac was substituted for white shellac without any change being made in the stain formula to offset this color change.

Also, it has been found that where orange shellac is used the color of the shellac purchased from different suppliers varied enough to affect the color of the stain used.

Where a change is made in the application of the stain—for example, changing from spraying to dipping or to brushing, or from any one to the other—the color of the stain will vary due to the different degrees of penetration.

In the face of all these facts, based upon actual investigation, I recommend that (1) once a color is made standard, an accurate formula be made; (2) each batch of stain made up should be weighed and mixed accurately; (3) each shipment of stain powders, colors, fillers, etc., should be checked for color on receipt; (4) when a batch of stain is carried over from one day to another a color check should be made each morning; (5) a water stain should not be applied hot one day and cold the next, and (6) once a finishing system is finally adopted it should be strictly adhered to, right to the letter.

Beautiful things are universally admired, and correctly finished articles are most easily sold.

H. Uehlinger Resigns From Hilo Varnish Corp.

Hilo Varnish Corp., Brooklyn, N. Y., announces the resignation of Mr. H. Uehlinger effective April 4, 1930.

Alexander Milburn Co., Appoints New Chicago Manager

The Alexander Milburn Co., 1416 W. Baltimore St., Baltimore, Md., announces that Mr. Charles R. Pollard has been appointed Chicago District Representative, taking over the supervision of the Chicago District Office, 220 S. State St.

Puhl & Hepper Mfg. Co's. New Plant

The Puhl & Hepper Mfg. Co. Inc., (exhaust systems, dryers, spray booths) St. Louis, Mo., has just completed arrangements whereby the company takes over possession of a new $100,000 plant located at Florissant & Acme Aves. in St. Louis for the purpose of manufacturing on larger scale than in the past, dryers, spray booths, blow-pipe systems, heating equipment, ventilating systems, and other kindred lines of special interest to the finishing industry.

In conjunction with this building, there is a large plot of ground which it is planned will sometime in the very near future be laid out into a golf course and an airplane landing field for the special convenience of customers and to provide landing facilities for the planes of the sales staff.

WHERE STANDARDIZED FINISHES FAIL

TRADE M&L MARK

M&L standard finishing materials are planned to meet every normal requirement of the individual user: Baking enamels . . . clear and colored lacquers . . . varnishes . . . first coaters . . . all of the highest quality in every practical variety.

There are many special cases, however, where NO STANDARDIZED MATERIAL will serve.

For this reason, MAYER & LOEWENSTEIN have developed to unusual extent an INDIVIDUALIZED finishing service. Trained experts are always ready to study your problem at your plant . . . and to create, where needed, a tailor-made finishing material that will fill the requirements.

WRITE FOR FURTHER PARTICULARS

MAYER & LOEWENSTEIN

ESTABLISHED 1846

INDUSTRIAL LACQUERS . . . VARNISHES
ENAMELS . . . FIRST COATERS

43-43 VERNON BLVD. LONG ISLAND CITY, N. Y.

Kindly mention INDUSTRIAL FINISHING when writing advertisers

Commercial Body Finishing and Lettering

By
J. C. COYLE

Revealing some of the latest methods and materials employed in a Denver commercial body shop that specializes in turning out custom color jobs that are both durable and attractive

THE PRESENT TREND in commercial body finishing toward the use of speed (one and two-day procedure); in other words, turn out a good job on time and make room for the next one, according to H. J. Cowan who is in charge of the finishing department of Timpte Brothers, commercial body builders in Denver.

Very little sanding is done in the department, except on passenger cars and on metal panels for commercial finishes. On the latter, a light dry sanding, or nibbing, follows the first coat of lacquer. No sanding whatever is necessary on "new stake bodies," requiring no knifing—and these are turned out in large quantities by the company.

Considerable experimenting was done in the finishing of new wood products, resulting finally in the discovery of a clear lacquer* that will absolutely prime and seal both hardwood and softwood, and even wood which contains a considerable amount of moisture.

After the priming coat, two hours are allowed to elapse, if possible, before the final coats of any standard automobile lacquers

*Manufacturer's name on request.

Announcing the new SUMCO AUTO POLISH

SUMCO IS A BETTER POLISH FOR:

It cleans better
Leaves no streaks
Prevents rain spots
Is easy to use

HERE IT IS! The polish *you* have wanted for years! It's the polish you *need* because it is fast and easy to use. Sumco Auto Polish not only gives a high lustrous polish — but restores the original finish and leaves a weather coating that prevents rain spots.

Many months of strenuous research have perfected this new formula. It contains no harmful ingredients. You'll like it because it's easy to use.

SUMMERS MFG. CO.

DETROIT

SEND FOR SAMPLE

Mail this coupon to us today with 50c for an 85c sample can. You'll like this easy-to-use polish.

SUMMERS MFG. CO., Inc.
12132 Woodrow Wilson
Detroit, Mich.
Enclosed find 50c. Please send us your regular 85c can of SUMCO AUTO POLISH immediately.

Name_____
Company_____
Address_____

are applied. For filled and knifed-in work, the filler and putty are used directly over the lacquer used for priming. This particular lacquer holds the finish out, and prevents chipping, cracking and other troubles often experienced on lacquer-finished wood surfaces.

The surface of metal panels is first cleaned thoroughly with gasoline, followed by a naphtha wash. If the atmosphere is damp or cold, and it is imperative that the work be finished quickly, from 15 to 25% painter's naphtha is added to the primer, which is allowed to dry from 12 to 20 hours. Three heavy coats of lacquer, with 50% reducer added, are then applied, allowing the first coat to dry for one hour. A fourth application of 85% reducer and 15% lacquer completes the finish.

When the finishing must be done in low temperatures, as is often the case in Denver, the procedure described has proved to be very advantageous. With the use of the oil-oxide primer and naphtha, good results have been obtained in temperatures of 20° F.

All Lacquer Lettering

Timpte Brothers' sign painter, Mr. J. C. Wright, is pioneering the lacquer process for lettering, in the Denver territory, on lacquer finishes that require long life, without the process of pencil varnishing. On March 3, 1930, the first all-lacquered sign-lettering job on a panel truck was completed in the Timpte finishing department. Forty feet of lacquer lettering was applied to the body of a truck, with a free-hand brush. The major portion of the body is finished in orange lacquer, and on the panels (on a field of orange) the lettering is dark blue, with a border of light blue, and shadow shaded in brown. On dark blue panels, orange letters with a light blue border and no shading were used. The panels were inclosed with a very narrow border stripe of white.

According to Mr. Wright, lacquered lettering on a lacquered body is much more durable than other lettering, and it is quite as easily applied.

American Cyanamid Co. To Sell Nitrocellulose

The American Cyanamid Co., 535 Fifth Ave., New York City, parent company of the American Powder Co., Maynard, Mass., announces: "Effective as of April 1, all grades of nitrocellulose manufactured by the American Powder Co., will be sold by the American Cyanamid Co., as exclusive sales agent."

SAN-ITAI-RIE FILLER

Pat. No. 1658605

For All Defects in Wood

Manufacturers in all wood-using industries find SAN-ITAI-RIE FILLER unsurpassed in filling cracks, worm holes, knot holes, open joints, dents, pitch pockets, etc., and through its use are able to send out their products without a flaw.

Put up in friction top cans—half pints to gallons—in 20 different colors. Send for sample can.

SAN-ITAI-RIE FILLER CO.

Division of

164-170 W. Kinzie St. G. J. Liebich Co. Chicago, Ill.

PAINTING ECONOMY

Keep your costs down and the quality of your work up by using a Quincy Compressor unit especially designed for spray painting.

There is a unit that will exactly fit your requirements—portable or stationary.

Quincy Compressors are high quality compressors, efficient, dependable, long lived.

Write for complete information.

Quincy Compressors

Model PX

A compact, portable three-wheel unit. Complete, ready to operate paint spray equipment. Has 20-gal. tank, pressure gauge, safety valve and drain cock; also suction unloader to maintain operating pressure of 80 lbs., which may be adjusted for any suitable pressure up to 100 lbs. The air filter is warranted by maker to be 99.9 efficient. Sizes 2½x2½ and 3 x 3½. Displacements 4.2, 6 and 8.6 cu. ft., depending upon size of motor.

N 12

QUINCY Compressors

305 Maine St. QUINCY, ILL.

Service and Sales Offices

Atlanta, Ga.
Birmingham, Ala.
Boston, Mass.
Buffalo, N. Y.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Dallas, Texas
Detroit, Mich.
Houston, Texas
Kansas City, Mo.
Memphis, Tenn.
Moline, Ill.
Newark, N. J.
New Orleans, La.
St. Louis, Mo.
Waco, Texas
Washington, D. C.

Also in other important centers

Printing Metal Signs by Silk Screen Process

By
A. M. SAUER

Superintendent of the Division of City Work, in Cincinnati, Ohio, describes in detail the silk-screen stenciling process, as used to paint the traffic and direction signs for that city

PROBABLY ONE of the best known signs in the civilized world is, "NO PARKING POLICE DEPT." All highway and traffic signs are read by millions of people. These signs are subjected to a most strenuous test—the elements. As far as appearance and durability are concerned, there is no middle course to pursue in the making of such signs; perfect legibility and long life are prerequisites. The silk-screen stencil process is used to paint these metal signs.

I believe there is only one way to meet the strict requirements of these signs: that is to use the very best materials, and proper equipment for the silk-screen method of reproduction.

We make all of the silk-screen stencils used in the sign department of the Division of City Work. Wood strips, 1¼-in. thick by 1¾-in. wide, are made into frames with mitered corners, and reinforced with metal corner braces to make them perfectly square and rigid. The sizes of these wood frames vary with the size of the signs to be printed. Generally we purposely allow about 2-in. on each side and from 4 to 6-in. on each end in excess of the full width and length of the metal sign. The extra side spaces permit free use of the squeegee, and the end spaces form reservoirs for the supply of paste color being used during the stenciling operation.

Making the Stencil

After the wood frame is made, the next step is to stretch the silk on the frame. We use No. 13XX bolting silk, 40-in. wide. First we cut a piece of this material to approximate size of the frame. I have found that the best way to stretch the silk on the frame is to tack or staple the selvaged edge, and then stretch the silk and tack the opposite edge. This will probably cause a few wrinkles to appear running in the direction the silk was pulled. Then stretch the silk moderately and tack to the third edge of the frame; after this is done, complete the fourth side.

In stretching the silk to the third and fourth sides of the frame, great care should be exercised to pull the silk just tightly enough to remove all of the wrinkles and still not distort the weave of the cloth. The excess silk is then trimmed off around the edges, and the edges are given a heavy coat of shellac to seal them down neatly and firmly to the wood frame.

The silk-covered frame is then placed on a table, such as is

The quickest and best way to remove old finish from wood and metal

LINGERWETT

the perfect remover for varnish, lacquer, shellac

Here's the way to get down to the bare surface in the least time and at the least cost.

Lingerwett remover goes right through not one or two coats but 6, 8, 10 and even 15 coats of paint, lacquer, enamel, shellac, or varnish. There is no remover like it.

Lingerwett does its work all the way from a few minutes down to instantly.

Lingerwett does not change the old finish to a sticky, slimy, gummy mass that is exasperating to clean up, but to a soft, mushy sludge which is easily wiped off.

Lingerwett as its name implies, dries very slowly. The protective film that forms over it will actually keep it wet overnight; which of course, is much longer than necessary.

Lingerwett doesn't hurt the hands or eyes, doesn't injure wood or metal—doesn't do anything you don't want a remover to do. And it does everything you ever hoped a remover could do. You'll be astounded at the action of Lingerwett and you'll be glad of the day you first tried it.

Which brings us down to our Free Trial. We realize that most removers on the market are pretty much the same. And we know that Lingerwett is very different. Different in manufacture, different in results. *We* know that, but *you* don't. That is why we ask you to send for our Free Trial—so that you can quickly and surely convince *yourself* of the real superiority of Lingerwett Remover.

Send the coupon right away, while this Free Offer is still in force. Learn how Lingerwett can serve you with greater efficiency and greater profit.

FREE TRIAL

to prove it to those who may think it's too good to be true

Send it NOW While You think of it

The Wilson-Imperial Company
119 Chestnut Street, Newark, N. J.

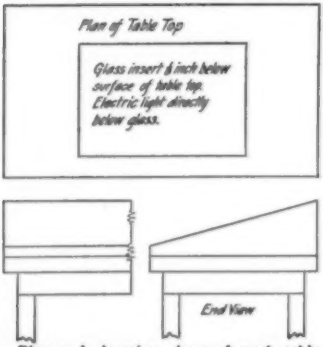
Please send me a free trial can of Lingerwett Remover.

Name .....

Street No. .....

City .....

illustrated in Fig. 1, where the letters of the sign are laid out and marked directly on the silk with a soft pencil. Small camel's-hair brushes are used to fill either



Plan and elevation views of work table designed for use in making silk screen stencils.

the letters or the background (depending on the type of sign desired) with pyroxylin silk screen filler. The stencil cloth is filled and allowed to dry about 10 or 15 minutes. A second coat is then applied to fill the pin holes. After this has dried about 15 minutes, the stencil is ready for use.

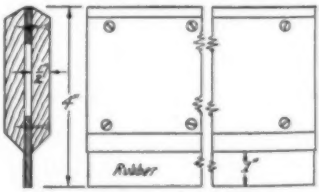
The life of the screen depends upon how the operator handles it and how it is taken care of when not in service. One silk-screen stencil can be used to make approximately 6,000 signs before it needs to be recoated.

The work table is solidly and rigidly built with a flat top 3x4-ft., having a hinge strip or cleat along the back edge. Mounted on this strip are two halves of a pair of loose pin butts, the mates of which are mounted on the stencil frame in such a position as to match those on the table strip.

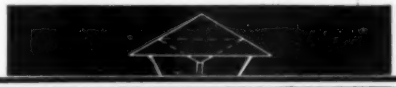
The squeegee is an important tool in successful silk screen work. We make our squeegees from ½ to 1-in. shorter than the inside of the stencil. Each squeegee is made by attaching a strip of ¼-in. (thick) rubber packing between two poplar strips about ½x4-in., as shown in Fig. 2. The rubber extends beyond the wood strips about 1-in. The open space between the rubber packing and the ¼-in. piece clamped between the wood strips forms an air vent, which prevents the rubber from swelling and breaking the squeegee. For clean-cut stencil work, it is necessary to keep the working edge of the squeegee tool square and straight. We use an ordinary sanding block for truing up the working edge of the tool.

Preparing the Metal

Metal blanks for these signs are made of 16-gauge cold-rolled, full-pickled, auto-body-finish sheet steel, with the surface free from oil. This sheet steel is purchased in three sizes: 18x18-in., 24x24-in., and 18x20-in. After being cut to size and shape, the blanks are chemically cleaned to remove any oil or grease, then dipped in hot water to remove all traces of the cleaner, wiped off and dip-finished in a black oil-primer. After draining, the blanks are placed in the baking oven where

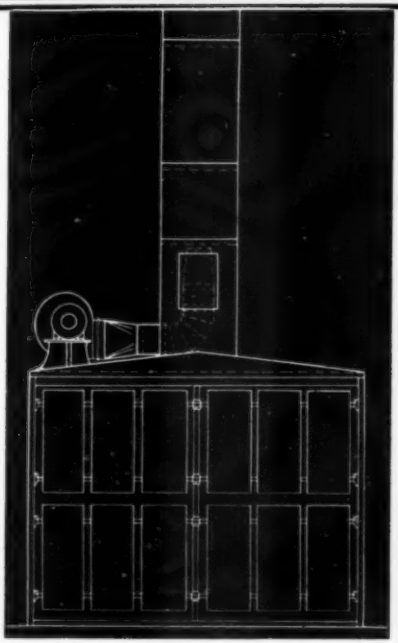


End and elevation views showing construction of squeegee tool used in connection with silk-screen stenciling.



Binks Scores Again!

New
Syphon
Type Spray
Booth Greatly
Reduces Fire
Hazard



While Binks Standard Spray Booths have always conformed to Underwriters' requirements, this latest achievement of our engineering department represents a decidedly forward step in fire prevention. The motor, mounted on top of the booth (out of the way) is fully enclosed, thus the material being exhausted cannot possibly come in contact with it or the blower and the possibility of fires starting from these sources is definitely eliminated. Binks New Syphon Type Spray Booths are made in the same sizes as our standard booths. Shipped knocked down to reduce transportation charges, yet easily and quickly erected by your own men. Write for literature describing this new and safer spray booth. No charge—no obligation.

Binks Manufacturing Company

3001 Carroll Avenue **Chicago, Illinois**

Representatives in All Principal Cities

the prime coat is baked overnight at 200° F.

The Stenciling Operation

When cool, the blanks are taken to the stenciling table where the stencil-printing operation is as follows:

1—A quantity of paste color is placed in the reservoir at the end of the stencil frame.

2—A blank is placed on the table and the stencil frame is drawn into position, directly over it, the blank to be printed being held in place by markers or guide pins.

3—The operator draws the squeegee across the screened design with a firm, even stroke, pushing the paint before the squeegee. Only ordinary pressure is necessary. This single stroke of the squeegee across the screen forces paint through the open portion of the silk and deposits a coating of paint on the blank directly beneath the stencil.

If the squeegee tool is clean and "sharp," and if the paste color is of correct consistency and adaptable in other respects to the process, a clear, well defined letter design will result.

After stenciling a run of signs, the stencil and squeegee are thoroughly cleaned with gasoline and put away in a clean dry place for future use.

Following the stenciling operation, the freshly-stenciled signs are hung on racks to air dry overnight. Next morning they are dipped in spar varnish. When they have drained thoroughly, the signs are placed in an oven where they remain overnight at 150° F. Next day they are withdrawn and, when cool, they are placed in storage to be requisitioned as needed.

Naturally, many old signs are returned to the shop for refinishing. These are placed in a hot bath of lye solution overnight; next day a workman, using a wire brush and putty knife, removes the old paint. These blanks are given a hot water wash (rinse) and wiped dry, after which they are then ready to go through the regular stenciling process.

Furniture Finished Antique; Dust Effects

When imitating antique furniture, some furniture concerns use rottenstone to get the old dust effect. I find that the use of rottenstone alone does not prove satisfactory, as it wipes or falls off of the article and then the dust effect is lost. However, this can be remedied by applying a little wax over the rottenstone and brushing the surface with a painter's duster brush.

Another and perhaps better method for dusting is as follows:

Mix liquid white mineral wax, or make a liquid wax out of beeswax and turpentine and add some rottenstone until it becomes the color of dust. This mixture can be applied with a small brush after the finishing process has been completed, and it should be applied only where one wants the dust to show.

After this mixture has been applied, it should be allowed to dry for at least 15 minutes before it is given a thorough wiping with a cloth and dusted out well with a fine-haired duster. This will imitate the dust effect as in old furniture.

To make it more realistic, the finisher may wipe the floor with a cloth and rub the dust obtained on the cloth into the corners where

ADVERTISING PAGES REMOVED

a certain amount of it will stick onto the wax mixture. This will give you as near a real dust effect as is possible to obtain. If the above dusting dries too fast, add a little linseed oil.—R. F. Daniels

Air Receiver Design and Installation

The purpose of an air receiver is to equalize the discharge pulsations from the compressor and to deliver a steady flow of air to the service line. It should be of adequate capacity and should be located near the compressor, but outside the engine room if possible. The receiver should be set clear of the ground—on blocks or on a small foundation—as dampness causes excessive rusting and corrosion around the bottom. The bottom seams should be kept clean and well painted.

The cubical contents of air receivers, as regularly used, are usually from 1/10 to 1/6 of the free air capacity per minute of the air compressor used. Since large air receivers absorb rapid pressure fluctuations, it is best to be liberal in the size of air receiver used.

The discharge pipe from the compressor should be connected at a point near the top of the air receiver, and the pipe line (to supply compressed air wherever it is needed) should be connected at a lower point.

A drain cock should be located at a low point in the receiver for drawing off at regular intervals any accumulated oil, water and impurities. A check on any excess amount of compressor lubricant is easily determined in this way.

Pressure gauges should be checked with standard gauges at regular intervals, making the necessary corrections when a discrepancy is found.

The pop-off safety valve should be of sufficient area to prevent any excessive pressure rise in the receiver in case the unloading apparatus fails to function.

In operation, the air pressure should be purposely raised at intervals, to make the safety valves function so as to avoid the danger of their sticking.—From Trade Standards of the Compressed Air Society.

Tumble Finishing

The tumbling barrel or drum may be classed as one type of painting machine inasmuch as it is used to some extent for finishing and polishing small parts. There are regular tumbling lacquers on the market now, and more work can be performed by this method economically on small articles, particularly on wood turnings. Perhaps the quality of the finish obtained in this way is not equal to that applied by other mechanical methods, but it offers "a way out" on some of the low priced classes of goods, and is therefore considerably employed. Naturally the results obtained will depend largely upon the quality of finishing material used.—J. E. H.

Building consumer appeal into the product depends largely upon the finishing department.

Turner Now With Marietta Paint & Color Co.

Mr. Thomas Turner, a widely known salesman in the wood finish trade in the Southwest, has joined the Industrial Sales Div., of The Marietta Paint & Color Co., Marietta, Ohio. He will handle the Company's business in Arkansas, Louisiana, Mississippi, Oklahoma and Texas.

Finishing Hard Maple

By
EDWARD C. H. ROTTMANN

Foreman Finisher declares that more hard maple is going to be used, and explains methods of finishing this wood attractively, durably and economically in color, or natural, or in imitation of darker colored hardwoods

MAPLE IS AN acceptable wood for use in interior paneling and doors; it takes a variety of beautiful finishes and lends itself to many pleasing effects. But heretofore, owing to the high cost of finishing the wood with the customary water and acid stains, it was seldom considered in the commercial building specifications of architects and contractors, and was prohibitive where production cost entered into consideration.

Owing to the above mentioned facts, the range of colors was confined to the natural finished, enameling, graining, and sometimes to an imitation cherry, or a weak-toned imitation mahogany finish.

New Stains Useful

The great strides made in recent years in the perfecting of penetrating oil stains have made it possible to secure many new beautiful and durable finishes on this particular wood, where economy in finishing is to be considered. And to-day, where every progressive and skilled wood finisher and painter understands the manipulating of these penetrating stains in the shading and toning operations of the different connecting pieces on the work, maple wood is now adaptable and practical for many interior building purposes—especially so where a beautiful walnut finish is desired—and the heartwood can also be used in walnut finishes, whereas in the former method of finishing, as mentioned above, it was generally rejected owing to its darker and off-shade color.

More Maple Being Used

Hard maple, to my mind, supercedes any of its competetive woods such as birch, gum, pine, etc. Its initial cost is less, as a hard maple, one-panel door, 2/8 x6/8x1¾, at present costs $6.60 as against a birch door of the same size at a cost of $8.60, or a white pine stile-and-rail, birch-panel door at a cost of $6.75. Added to this saving in the initial cost, there is the economy in finishing as well—and besides, a hardwood door is always more desirable in any building. Then there is this fact also; that some of the leading industrial concerns are stocking up with maple doors, paneling, etc., for building purposes. All this, of course, is in answer to a demand in this field, created in recent times.

Finishing hard maple economically will be one of the coming problems, I believe, for wood finishers and painters. If we do not understand the economical finishing of this wood, we will naturally be placed at a disadvantage in these times of hectic competition.

Regarding some inquiries of, "how to get the full walnut tone

This test has cut costs in scores of processes

Try it, Mr. Chemist. We send you a sample of Butanol free

GENTLEMEN: In order that you may make a test with our versatile alcohol, Butanol, we want to send you a sample free. Butanol has cut costs and contributed to the improvement of many different processes. We could cite you several remarkable examples of the ingenuity and resourcefulness of alert chemists in utilizing this remarkable product.

A test is all we ask. A test in your own laboratory where you can find out just what this versatile alcohol will do. It is entirely possible that Butanol can simplify or improve your present production.

This free sample will be sent to you without obligation of any kind. Just fill out and mail the coupon at right.

What is Butanol?

Butanol is our trade name for normal butyl alcohol of exceptional purity. It is a solvent, a blending agent, a dehydrator, a penetrant, a defrother and a base for a multitude of useful organic products.

Butanol

the versatile alcohol made by

Commercial Solvents Corporation

SALES OFFICES:
New York Central Bldg., 230 Park Ave., New York, N. Y. Terre Haute, Ind.
Aldwych House, Aldwych, W. C. 2, London, Eng.
PLANTS: Terre Haute, Ind., and Peoria, Ill.

5

Commercial Solvents Corporation,
Terre Haute, Indiana.

Gentlemen: Please send us your free test can of Butanol at once.

Your name.....

Company's name.....

Address.....

City.....State.....

and depth of color without using water or acid stains on maple doors," and in reply to these inquiries I will confine myself to this subject, namely, finishing with a hard-drying, penetrating, walnut, oil stain.

Moisture-Proof 3-Coat Job

The commercial finish I have in mind with this penetrating stain has the advantage of being moisture-proof on a three-coat application, and is by no means a "trick finish," as any practical painter can secure satisfactory results. It does not require any preparatory work, such as the usual sponging, sanding, sizing and final sanding operations, but with this system and where the work has been properly machine surfaced and cleaned, the doors are ready for staining when delivered to the finishing room or building.

After the stain is prepared to meet the color requirements, it is applied with a brush or spray gun in the usual manner, but instead of equalizing the color with a wiping cloth, it is blended into the surface with a heavy blending brush or an ordinary flat dusting brush, which is faster and less laborious than a wiping-cloth operation; also this method has the necessary advantage of not removing any stain from the surface, therefore a greater depth of color is the result.

After this stain coat is dry, a full-body coat of pure shellac is applied. When this shellac coat is dry, the surface is sanded or steel-wooled to make it smooth, after which a coat of suitable lacquer is applied in the usual manner, with a brush or spray gun.

Pass on new models the minute they are ready; the time element has a lot to do with sales.

Protecting and Cleaning Stained, Chapped Hands

Formerly a very disagreeable condition prevailed in our paint-mixing room, especially after we began using lacquer. It was the effect the finishing materials had on the men's hands. In the winter particularly, the finishers' hands became chapped and turned black from washing spray cups and cleaning spray guns in the wash tank which contained a lacquer solvent or thinner. We asked the different salesmen who call on us if they could suggest a remedy for this condition, but everything we tried—such as gloves, oil and grease—turned out to be a failure.

One day, on recommendation, we tried castor oil and to our surprise it served our purpose perfectly. The men rub it all over their hands before starting work in the morning; also at noon or any other time through the day when they notice their hands becoming dry. At night, they merely rub on some more castor oil, wipe their hands with a rag and then wash in the usual way with paste soap. As a result the annoyance and unsightliness of stained hands has been eliminated.—E. Randall.

New Executives of General Pneumatic Tool Corp.

Mortimer Sullivan and Gerald Hale have recently been added to executive positions with the General Pneumatic Tool Corp., Chicago. Mr. Sullivan, who is an authority of spray painting, has been elected President. Mr. Hale has been elected Vice-President. Both of these men have had wide experience in the spray equipment industry.

Catalogs containing descriptions and illustrations of recommended equipment for different types of service are ready for distribution and may be secured from the General Pneumatic Tool Corp., 4820 W. Lake St., Chicago, Ill.

PENTEXEL

FOR LACQUERS OF EXCELLENCE

Desirable properties in a lacquer solvent are:—

Good solvent power for cotton and gums.

An evaporation rate such that the lacquer is workable in application and deposits a good film on drying.

Good blush resistance.

Chemical stability.

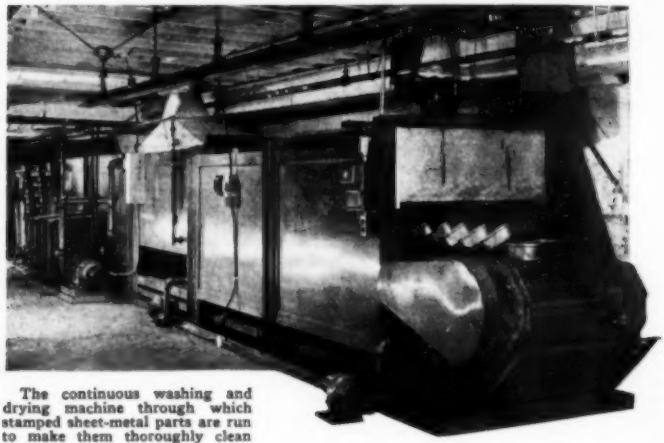
Pentexel more than any other solvent meets these requirements *and* while maintaining quality in the lacquer will provide a substantial saving in cost.

The quality of Pentexel is guaranteed by the makers of Pentasol and Pent-acetate.

The SHARPLES SOLVENTS *Corp.*

2304 Westmoreland St., Philadelphia

548B Railway Exchange Bldg., Chicago, 501A Fifth Ave., New York



The continuous washing and drying machine through which stamped sheet-metal parts are run to make them thoroughly clean and dry.

Cleaning and Bake Finishing Pressed Metal Parts

By W. H. HEERMAN

Calling attention to late-type equipment in Garton Toy Co's. factory for the production process, which includes mechanical handling and conveying of metal parts, cleaning, drying, dip-finishing and bake-finishing

A REVELATION in modern industrial transition is seen in the rehabilitation program of the Garton Toy Co. at Sheboygan, Wis., since the disastrous fire that wiped out the factory buildings on May 31 last year. Shortly thereafter the factory buildings of another plant were taken over, remodeled inside and modernly equipped for the manufacture of children's vehicles, the present establishment being probably the largest and most modern of its kind in the United States.

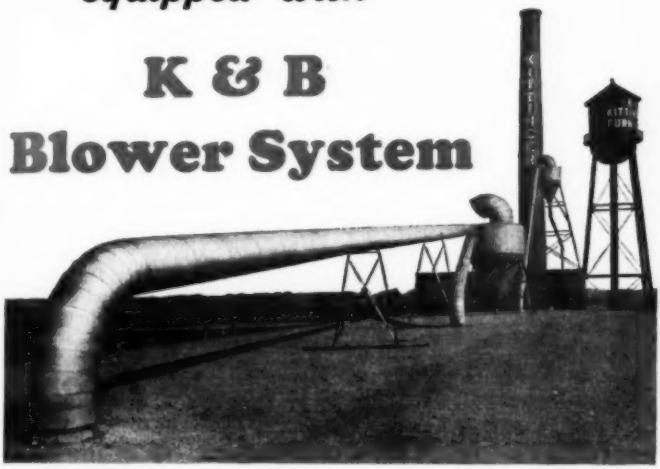
Employing about 500 men to turn out a daily average of 1,500 wood and steel wagons, 700 baby-walkers and 800 sleds, in addition to miscellaneous other toys that are manufactured, it is imperative that every process be carried through with the utmost efficiency. The Garton executives have come to believe that the latest industrial appliances would aid materially in reducing cost of production and in speeding up operations.

The two machines shown in the accompanying pictures are part of the equipment installed in the new plant. The first illustration at the beginning of this article shows the new Blakeslee washing

New Kittinger Shops

equipped with

K & B Blower System



The R. G. Kittinger Shops, Inc., North Tonawanda, N. Y. manufacturers of fine furniture, recently opened their new factory which is fitted with the most modern and efficient equipment available. Kirk & Blum were called upon to design and install their refuse collecting system.

Although higher in first cost, the K & B System was selected because it is designed to provide for future expansion and has a lower power consumption. New machines can always be added without additional power or adjustment in the system. Efficiency in K & B Engineering guarantees a maximum amount of suction with minimum power.

It will pay you to investigate K & B Systems. Write for illustrated book, "Blower System."

THE KIRK & BLUM MFG. CO., 2890 Spring Grove Ave., Cincinnati, O.
Detroit Factory and Office: 4718 Burlingame

Pittsburgh Representative: The Bushnell Mchy. Co., 1501 Grant Bldg.
Louisville Representative: Liberty Blow Pipe Co., Inc., 917 S. 12th St.
Canadian Representative: Canadian-Rogers Ltd., Winnipeg and Toronto

KIRK & BLUM
Blower Systems

and drying machine. When the tin and steel sheets (as raw material) are shipped to the factory, they are covered with a thick coat of oil and grease which makes the material more malleable and saves the dies on the stamping machines. It is imperative that this oil covering be removed before painting.

For example, suppose we assume that a number of sheet-metal wheels have been turned out by the stamping machine. They are placed on the screen belt in the manner shown. The belt is set in motion, and sprays of chemical from the tanks on the right are forced upon the wheels from above and below. This cleanses them of all oil, grease and dirt.

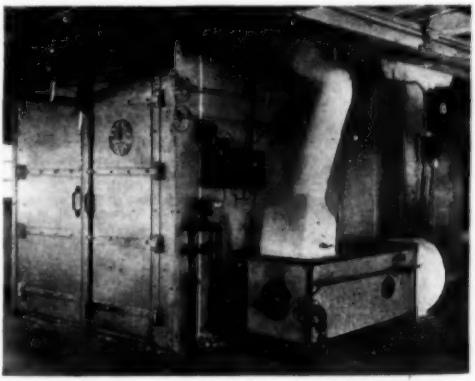
As the belt moves slowly along, a blast of air is blown on the wheels to remove the moisture. Then, as a final step in the process, the cargo enters a gas-heated drying chamber where the last traces of moisture are taken out at a temperature of about 400°F. The belt travels a total distance of 40-ft. at 8-ft. per minute, so that the whole process of washing and drying is completed in five minutes.

Previous to the installation of this machine, the oily parts were placed in huge shaker boxes filled with sawdust. Their purpose was the same as the machine described above, but the process took about an hour's time and was far less efficient.

The other illustration appearing in this article shows a new gas-heated 6x15 ft. japanning oven, which is used to dry the products after they have been painted or dipped. A temperature of from 250 to 700° F. can be maintained so that the dryer, equipped with 4-in. insulation, is a vast improvement over the old, tedious, unhealthful method of kiln drying.

The oven is equipped with the latest improved type of automatic overhead conveyors—another addition to the efficiency of production. After the dipped articles have been attached to the cars, they are conveyed into the oven, the doors are closed, and the heat admitted. After a few hours, the paint is thoroughly dry.

To the right of the dryer is part of the Furkert recirculating system by means of which a portion of the hot waste gases are recirculated, thereby increasing the efficiency of operation. The suction side of the Furkert also draws the fumes from the japanning chamber, thus serving both as a vent and an aid to economy.



The japanning oven is equipped with the latest improved type of overhead conveyors and recirculating system.

PRODUCTION INCREASED . . AND THEIR TROUBLES BEGAN!

THIS large, nationally known manufacturer of metal refrigerator cabinets was enjoying a rapidly increasing demand for its product. Production lagged, and the fault was traced to the finishing department. Both undercoats and lacquer were being applied on a conveyor system and air dried. "Too slow," said the plant engineers, "we'll put in drying ovens."

But with the ovens, fresh difficulties were encountered that included spraying, flowing and drying. Finally, advice was sought from Pierce & Stevens engineers. As usual, they completed a study of plant working conditions, then made their recommendations. A special lacquer thinner was formulated that applied the finish with perfect satisfaction at a saving of $125 a month on material costs.

What's your finishing problem? If it concerns drying, packing, sanding, rubbing or recoating time, we are prepared to find the answer.

Pierce & Stevens, Inc.

"Since 1887"

Industrial Lacquers and Lacquer Thinners

721 Ohio Street **Buffalo, N. Y.**

PS-4

Crystallizing Lacquers in Beautiful Effects

By
L. B. MILLER

Calling attention to the characteristics of certain types of frosted or crystallizing lacquers the novel effects of which are controllable in lacquer formulation, and explaining the how, why, when and where about using these new finishes

DUE TO THE fact that most users of lacquers—especially the manufacturers of novelties—are always on the alert for new finishes, several lacquer manufacturers have turned their attention to manufacturing lacquers that will cut their customers' production costs and at the same time give them better and prettier finishes.

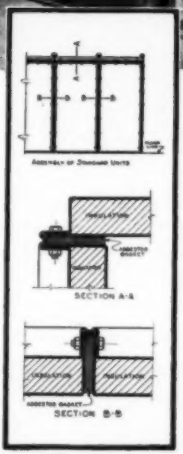
One of the latest developments along this line has been the perfection of crystallizing lacquers. With this type of lacquer many different color effects can be obtained which are very attractive and pleasing to the eye.

Lacquer manufacturers have several types of these lacquers. Special types are made to meet any method of application, such as dipping, pouring, or spraying either on bare metal, hard pressed paper, glass or paint undercoaters. I wish to add here that, from my experience, I do not recommend the using of these lacquers on glassware unless a satisfactory bond coat can be secured which will hold tenaciously to the glass.

Illustration at top of page shows the "feathered clear over paint undercoater."

DRYING OVENS

. . . In Standardized Insulated Sections



MAHON Industrial Drying Ovens, manufactured in standard insulated units for economical production, provide industry with drying equipment of unlimited utility. From these standard units, ovens of any size or shape may be erected to meet any industrial requirement. And these ovens may be dismantled, with 100% salvage, and re-erected in a new location in a different size or shape as dictated by changes in your production program.

¶Mahon Standard Unit Ovens are fireproof and waterproof —all insulating material is completely enclosed in metal. They can be furnished insulated to any degree to meet your exact specification. ¶If you are contemplating the purchase of Drying Equipment, you cannot afford to overlook the economy of Standardized Unit Construction and the flexibility it provides for future re-arrangement.

THE R. C. MAHON COMPANY

Detroit, Michigan

Manufacturers of Industrial Drying Ovens, Spray Booths and Exhaust Systems.

MAHON

INDUSTRIAL DRYING OVENS

BUILT FROM STANDARD INSULATED UNITS

Variety of Controlled Designs

These lacquers are made up to crystallize in any number of effects or designs. They are made to crystallize or break out in long straight needles which, to say the least, produces a very modernistic effect. They are also formulated to produce long needles which curl up in circles at their tips, and filling in between some of the needles with a very pretty feathered effect. There is still another with which I have had some experience. This type shows feathered effects almost all over its entire surface. This last named type gives a most attractive finish when the clear crystallizing lacquer is sprayed over a colored paint undercoat.

All of these lacquers can be very closely controlled by the lacquer manufacturer, but they should never be reduced or left uncovered, but used as received in the container. They will stand up satisfactorily on indoor work; I have a metal lamp finished with this material and it has been in daily use for nearly a year and it is still in as good condition today as when it was finished. These lacquers are strictly a one coat proposition unless or except when used over a paint undercoater.

They are not satisfactory for outside exposure. They cannot be applied over lacquer nor can lacquer be applied over them. They may be protected by a very thin coat of certain varnishes, but in so doing some of the finer details are lost.

Should one desire to use these lacquers over wood, the wood should first be given a coat of clear sealer. This sealer acts as a stop and does not allow the lacquer solvents to penetrate into the wood.

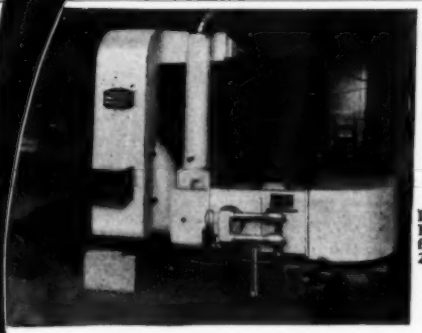
These lacquers may be obtained clear, colored with dye solutions or pigmented.

Colored Crystallizing Lacquers

First, let me discuss the pigmented type crystallizing lacquers. These may be obtained in any color or pastel shade to give any desired crystal. I do not recommend the feathered crystals in the pigmented line, but rather the long needle type. This particular type gives the prettiest pigmented effect and this crystallization gives the best contrast, for the lacquer, being one color, the needles dif-

Modernistic effect over paint undercoat.

DRY-SYS OVENS AND HEATERS FOR ANY PRODUCTION SCHEDULE



Illustrating a DRY-SYS Compact Heater installed alongside a six-foot oven. Capacity ranges from 200,000 to 350,000 B. T. U.

DRY-SYS ovens and heating equipment have, for years, been the acme of efficient design and operation on large production schedules.

Convected heat, re-circulation of air and automatic control have always been fundamental principles of DRY-SYS heating.

NOW—for the first time—DRY-SYS ovens and heaters are available to plants having small production drying and baking.

New developments in heating design brings the DRY-SYS Compact Heater—gas fired, induced draft—small enough to set on top or alongside a six-foot oven without crowding.

The new equipment is backed by all the engineering ability and experience that has made possible the phenomenal success of DRY-SYS ovens and heaters in their many unusual installations.

It is a guarantee to the small production plant of maximum oven efficiency at a price they can afford to pay.

PATENT PROTECTION

DRY-SYS Induced Draft Heaters and DRY-SYS Multitube Alternat Heaters are covered by patents and patent applications on specific design or process features. Drying System, Inc., are the sole licensees of U. S. Patent No. 1202741, granted Henry L. Doherty, April 17, 1917 on application filed July 6, 1915, covering the recirculation of diluted products of combustion, in drying and baking processes.

There is no job too large or too small for DRY-SYS Equipment

DRYING SYSTEMS, Inc., 1821 Foster Avenue, Chicago, Ill.

Our manufacturing process requires the drying / baking of.....

Please send descriptive literature on DRY-SYS Equipment.

Name..... 7901

Address.....

Town.....State.....Attention of.....

Revealing the effect produced when the needles curve at their tips. This is also over a paint undercoater.

fuse the light rays and aid the contrast considerably. This type of finish is making fast strides in the lighting-fixture line, and for finishing novelty and other metal objects where one coat is desired such as metal radio boxes, typewriters, adding machines, etc.

Another type of one-color crystallizing lacquer is that in which dye solutions are added. This type is being widely used at present in the manufacture of pressed fiber boxes such as those used for candy or writing paper.

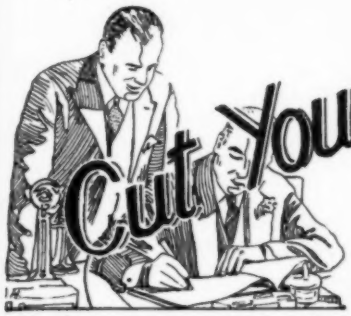
Many of these lacquers are made to dry slowly in order to obtain larger crystals. This slow drying also plays an important part in blending of colors. Very pretty effects may be obtained by spraying or pouring sections in one color and filling in the open sections with a different color. When these are properly applied there is no distinct break in the crystallization between the different colors but the needles continue straight through from one color to the other. The dyes also blend and produce different shades between the two lacquers. Any number of these colored lacquers may be applied to one object to obtain several colored effects.

Clear Crystallizing Lacquers

I have found that the prettiest effects are produced when the clear lacquer is used over a paint undercoat. These undercoaters are obtainable in any shade. They require an overnight dry, or a short time, low bake.

It is strictly a matter of choice as to which clear is the most pleasing. In my opinion, the feathered clear gives the best and prettiest finish. The most contrast is obtained when this clear is used over black, and an effect similar to pearl is obtained when it is used over . . . white, . . . and very pleasing finishes are obtained when it is used over red, blue or dark green.

All of these lacquers are most pleasing to say the least and, even though they are a little higher in price than the average run of present day lacquers, the effects they produce are well



For Processing Operations with

NICHOLS-McCANN-HARRISON

1. Absolute Control.
2. Speedier Processing.
3. More Even Distribution of Heat.
4. Better Circulation of Air.
5. More Uniform Output.
6. Increased Production.
7. Lowered Costs.

HIGH TEMPERATURE

OIL or GAS FIRED **Heaters**

Nichols controlled oil or gas fired equipment for high temperature processing insures not only reduced fuel costs, but effects substantial saving in the entire operating expense. With higher temperatures made possible, processing is speeded up, output increased and wasted labor and material avoided through uniformity of finish and product. Progressive plants find that the savings secured quickly offset the cost of the apparatus and insure more profitable production thereafter.

Bulletins Sent on Request

NICHOLS PRODUCTS CORP.

High Temperature Drying and Processing — Industrial Ovens Conveyors — Spray Booths, Air Washers, Dip Tanks

12953 Greeley Ave., Detroit, Mich.

NEW YORK CLEVELAND CHICAGO PORTLAND, ORE.

worth the difference. They are rapidly promoting sales.

In the application of these lacquers by the spray gun, the best effects and largest crystals are produced by spraying as wet a coat as possible at from 20 to 30-lbs. air pressure, and avoiding the overspray as much as possible.

How Efficient Respirators Really Are

In response to inquiry requests from a committee of the National Safety Council, Surgeon General H. S. Cummings, of the U. S. Public Health Service, has carried on some investigations to determine the efficiency of respirators for protection against poisonous sprays. The results have been published in Public Health Bulletin No. 177. The specific questions put by the National Safety Council were as follows:

"1—What filtering material, if any, is adequate to reduce the lead content of the air, to which a spray operator is exposed, from 200 milligrams per cubic meter to 0.6 milligram per cubic meter? (a) To reduce the amount of benzol under similar conditions from 2,000 to 75 parts per million? (b) To reduce the number of silica particles under similar conditions from 200,000,000 to 100,000 per cubic meter, as determined by the Plamer method?

"2—How long would such a layer function?

"3—How do certain typical masks now available measure up to this standard?"

In the announcement of results of survey tests, we are first told that the concentrations listed above should not be construed as being those to which spray painters are commonly exposed. They represent more nearly the high concentrations which can quickly cause sickness, and are to be considered as extremes.

Then we are told the tests show that in general the respirators with cotton, paper, or fabric filters remove 90% or more of the lead from air carrying paint mist, but that these respirators restrain none of the solvent vapors. However the addition of a canister or cartridge of activated charcoal to the respirator removes all solvent vapors until the charcoal becomes saturated. Also that:

"The useful life of filters is determined by their increase in resistance, which necessitates changing for fresh filters at intervals of several hours. When the charcoal is saturated, the cartridge must be exchanged for a fresh one. Canisters of the size used with gas masks may last for weeks before a change is necessary."—J. C. T.

New Polish Line—Sumco Brand

The Summers Mfg. Co. Inc., Detroit, Mich., announces a new line of polishes and sanding compounds. The line includes Sumco Auto polish, Sumco Cromium polish, Sumco Furniture polish and both hand and machine sanding compound. The new auto polish especially features "ease of application and the weather coating that it leaves on the car."

Paasche Opens Milwaukee Sales & Service Branch

A bulletin from the Paasche Airbrush Co., 1921 Diversey Parkway, Chicago, states:

"We wish to announce the opening of our Milwaukee office at 290 Third St., where we will carry a stock of emergency parts and a display of improved airpainting equipment. We have secured the services of Mr. J. S. Bone, who is well known in the airpainting field, to be associated with our Mr. J. Ebert in the Milwaukee territory."

ADVERTISING PAGES REMOVED

Questions and Answers

This service department is conducted to meet the reader's need for prompt information on specific problems, and to give others an opportunity to review the questions and to offer any further comments or recommendations pertinent to subjects mentioned

Walnut Brown on Oak Refinishing

Please tell us what sort of stain is most satisfactory to use to stain oak a uniform brown similar to walnut color. We want to use it for refinishing office suites. The finish we want is like the oak dining room suites that have been quite popular during the last few years, but we have been unable to find a stain that will do the work well.—M. H. S. Co.

A permanent stain* for walnut may be depended upon to give the results desired, if properly handled. This stain should be reduced to the required strength with reducer and applied preferably with a spray gun, although it may be satisfactorily applied with a brush or rag.

After drying four hours it may be coated with lacquer, either clear or tinted with the stain. In case a tinted lacquer is used do not add more than 5% of the stain. Of course, varnish may be used over the stain instead of lacquer if preferred.

If the job to be done is a price rather than a quality proposition and if varnish is the finishing vehicle, a small amount of black asphaltum, reduced with turpentine, may be added to the first coat of varnish, and the walnut tone secured in this way. The asphaltum should be used sparingly, as its tendency is to slow up the drying of the varnish.—A. B. Laboratories.

*Name and number on request.

The question does not state whether the old finish is entirely removed, or whether the inquirer intends to refinish over the old finish, nor whether the old finish is lacquer or varnish. Assuming that the old finish has been removed, there should be no trouble in obtaining the desired shade and tone. I suggest obtaining samples of walnut crystals; these come in both brown and red shades. They are water soluble and the depth of color desired may be obtained by the concentration of solutions, or by blending the two shades of crystals.—L. B. M.

Lacquer Sealer Cracks

We have an expensive solid mahogany frame upholstered living room suite which we finished, using one coat of sealer and two coats of lacquer. We find that the coat of sealer under the two coats of lacquer has cracked, while the lacquer finish has not cracked. We are wondering if you can suggest any method whereby we may remedy the cracks in this sealer finish without removing the two

THESE NEW OAK EFFECTS *are gaining* In POPULARITY

OAK—with its wealth of tradition is again finding popularity with the American homemaker—particularly in the new finishing effects which have recently made their appearance.

If you are planning an oak suite—or would like authentic information on how to obtain these new oak effects—we shall be glad to supply this data—and if you wish, work with you to obtain the results desired.

It has been our good fortune to have worked with some of the manufacturers who pioneered this new finish treatment—and have seen the resulting suites jump to almost instant popularity. Possibly oak—and these new finishes hold a real merchandising opportunity for you—at least it is worth your serious consideration.

Remember we are always glad to be of service in solving your finish problems—and that for every day—dependable finishing results—you can find no better source of supply than J-W-F Products.

■

Jamestown Wood Finishing Co. products are guaranteed. If they will not do for you what we claim for them your money will be refunded.

■

Jamestown Wood Finishing Company

Executive Offices and Plant
JAMESTOWN, NEW YORK
BRANCH OFFICES: Milwaukee, Wis. Meriden, Conn; New York City; Lenoir, N.C.

STAINS - FILLERS - SHELLACS
VARNISHES - LACQUERS - ENAMELS

coats of lacquer; that is, if there is some solution we might use to merely soften this finish, and smooth out these cracks in the sealer without removing the entire finish, for as this suite is upholstered it will be a very difficult proposition to remove the entire finish.—U. B.

My first bit of advice is to stop using the sealer and save future trouble. If the sealer is actually cracking under the lacquer, it surely cannot have been a true lacquer base or pyroxylin-base sealer, which I think should be used under a good lacquer to insure a proper "knit" between sealer and lacquer; this (knitting together of the sealer and lacquer coats) evidently has not occurred.

The inquirer asks for a remedy but does not wish to remove the finish. This may be accomplished but it will require the service of an expert brush man and technician. My suggestion is that this concern write the manufacturer of the lacquer, asking for the strongest of the solvents used in the formulation of the lacquer—or rather for both pyroxylin and gums, and to these add enough "retarder" or high-boiler to prevent rapid evaporation. The proportion will have to be worked out by the man doing the job, as no two lacquers are identical.

Apply this solution with a flowing brush and put on enough to have a wet surface, brushing only one way or the lacquer may lift. Do not brush more than is absolutely necessary. Regular thinner may be used, but I would not try it on any high-grade work. I prefer to formulate my own solution for this kind of job. The solvents of this solution will eat through the lacquer and will dissolve the

ADVERTISING PAGES REMOVED

sealer enough to obliterate the cracks. The work may require more than one application to get through to the sealer.

After this treatment, enough of the lacquer film will have been dissolved to require a coat of lacquer to bring it back to its original body. This may also be applied with a brush, using retarder to give good "brushability."

If the job can be brought back to the factory, which I advise by all means, the upholstered parts may be masked with heavy paper and the last coat of lacquer can be sprayed on. I do not advise using sandpaper before applying the lacquer, as it will cut through the color in places where the film has become thin by using the crack solution treatment. This last coat of lacquer will remove most of the brush marks, and those that have not been removed entirely will be smoothed up in the rubbing operation.

The solvent solution might possibly be sprayed on, but this will require heavy masking to protect the upholstering; however, if this can be done, it will in turn be easier to keep the surface wet, which will facilitate solvent action.—G. F. Huizenga.

Striping Toy Smoke Stacks

On our line of toys we use round smoke stacks made of ⅝-in., ¾-in., or 1-in. doweling. On the finished toys these are approximately 3-in. long, and finished in gray or black lacquer enamel. We would like to learn of a method to stripe these articles—putting one, two or three narrow stripes in gold or red around the stack. Also, we would like to print a name or a pattern on such a rounded surface. It is

Lower Finishing Costs!

Notable among results obtained in using Amerilac Lacquers is the reduction in finishing costs.

Manufacturers of furniture and cabinets find that Amerilac materials are more easily applied, give greater coverage and require less sanding — all contributing factors in effecting substantial savings in finishing departments.

Nor is quality sacrificed in attaining lower costs. The beauty and durableness imparted to high-grade pieces is an outstanding characteristic of Amerilac lacquers.

The pleasing effects obtained with either Amerilac No. 96 Gloss or the No. 97 Rubbed Effect Lacquers stand the test in high-grade finishing.

Try Amerilac Nos. 96 and 97, and be convinced. Your Inquiries Solicited

The American Varnish Co.

High Grade Varnishes, Pyroxylin Finishes, Stains, Fillers and Enamels

1138-1146 N. Branch St., Chicago

96 GLOSS 97 RUBBED EFFECT Amerilac Lacquers

Your Health *Demands* PULMOSAN Protection!

The PULMOSAN Chemical Cartridge Respirator protects you against fumes, vapors and dust while spraying.

It cleans all air you breathe.

For better health . . . and more efficient work — adopt PULMOSAN, the respirator rated 99.7% effective *by actual test.*

Pulmosan Safety Equipment Corp.
176 Johnson St., Brooklyn, N. Y.

Gentlemen: Send us details on your chemical cartridge respirator.

.....

.....

..... (I. F.)

no more or less than the same method or a similar one to that which is used in lettering large round advertising pencils.—T. T. Inc.

To finish these toy stacks, I would put a strip of doweling in a turning lathe, run it at slow speed, and use a striping tool of the kind advertised in INDUSTRIAL FINISHING to each length equal to a toy smokestack.

A strip of doweling 3 or 4-ft. long could be placed in the lathe at one time and spaced for length of stacks and location of stripes; afterward these multiple lengths could be cut to net size and the ends could be dip-finished and wiped to complete the job.

A rubber stamp on a wheel, if handled properly, would do the lettering in conjunction with lathe finishing.—Harry L. Hill.

Rubbed Flat Lacquer Turns Gray

I am interested in a flat lacquer that can be rubbed without turning gray. I have been looking for such an article for some time. —C. R. B.

I wonder whether C. R. B. rubs in oil or water? Assuming that he rubs with oil I suggest a non-blushing rubbing oil.* If he water-rubs, the "turning gray" may be caused by using a cheap thinner or lacquer, or a combination of both.

Flat lacquers were really made with the idea of saving the rubbing operation, consequently, many of them have not been thoroughly tested as to their

---

* Mfrs. name on request.

characteristic reaction to oil or water. If this trouble cannot be overcome by either of these suggestions, ask the manufacturer who supplies this lacquer to submit a lacquer that will not turn gray.—W. R. Beutin.

C. R. B. has had the same trouble that all finishers have experienced when they rubbed flat lacquer. After the rubbing oil or water has been cleaned off the rubbed surface, and it has stood long enough to dry, it is found to have a very gray coat. The question is, why does flat lacquer turn gray when hand rubbed?

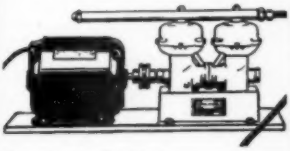
Flat lacquer is formulated differently from clear lacquer inasmuch as it contains a very finely ground pigment which is very transparent, this giving the flat or rubbed effect. The sheen of flatness is controlled by the amount of transparent pigment incorporated in the lacquer.

Before the hand rubbing operation, flat lacquer is nearly as transparent as gloss or clear lacquer, but when one starts to rub flat lacquer with any kind of an abrasive such as pumicestone, sandpaper, etc., he ruptures the surface of the film and cuts into this pigment, turning it to its natural color, leaving this gray coat as the result.

A more pronounced example of this may be seen by applying a coat of "sanding sealer" to a piece of work, allowing it to dry, then sanding it with fine sandpaper. Sanding sealers are formulated similar to flat lacquer, containing synthetic gums or pigments.

There are some who suggest that after giving flat lacquer a light rubbing, to apply a coat of wax, but the real method of obtaining satisfactory results with

For FINISHING METAL you can't beat SPRA-MORE!



Here's what Philip Petersen, owner of The Bright Shop in Los Angeles, experts in metal finishing and metal protective processes, has to say about SPRA-MORE:

"I cannot say too much in complimenting you on SPRA-MORE. We have done several heavy jobs with it . . . one of which was the modernistic wrought iron work of the new C. H. Baker store . . . our SPRA-MORE worked night and day for over two weeks. It is a splendid outfit, and during two years of use in metal finishing, our maintenance cost has been practically nothing."

May we help you solve your finishing problems? There's a Crown Product for every finishing need. Write for complete information.

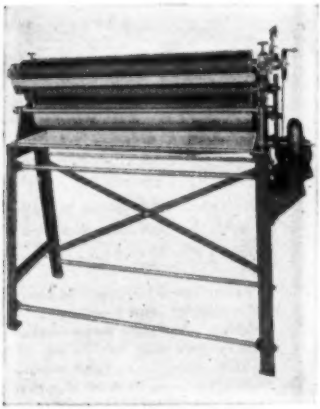
Crown Spray Gun Mf'g. Co.

1216-18 Venice Blvd. Los Angeles, Calif.

Warehouse Stocks of Crown Products Carried in Eastern and Middle Western States

The NAZ-DAR Coating Machine

For Applying Lacquers, Enamels, Varnishes, etc.



Faster Production
Less Material Waste
More Uniform Application
Greater Coverage Per Gallon

A NAZ-DAR coating machine will show improved results over hand or automatic sprays on any sheet or strip material.

NAZ-DAR COMPANY
4014-22 N. Rockwell St.
CHICAGO, U. S. A.

Also Manufacturers of Silk Screen Process Paste Paints, Equipment and Supplies

flat lacquer is to first coat the surface with a good sanding sealer* and then sand this perfectly smooth when dry. Then apply one coat of flat lacquer, being sure that the surface is cleaned free from dust and dirt. A satisfactory job may be obtained by using this method.

The sanding sealer, should be sanded down to a glass like surface. This is the important step in obtaining an even surface on which to apply the flat lacquer, and if the sanding of the sealer is done as it should be and the coat of flat is carefully applied, as to the elimination of dust and dirt, there is no reason why one should try to hand rub the flat lacquer coat.

Flat lacquer is not made to be rubbed although there are a lot of representatives of lacquer companies who, when they meet competition, will sing out, "Our flat will stand a slight rubbing." They know when they make this statement that it is not in the Book nor according to Hoyle, and when the finisher tries to rub the flat, especially on the darker finishes, he soon finds out that as far as the flat lacquers are concerned, at the present time they are all alike in this respect; they all turn gray when rubbed.

It is possible to produce a very fine finish with flat lacquer, but it should be done without rubbing the flat coat; it's simply a matter of having the sealer coat sanded properly and the flat coat applied clean.—F. W. Purdon.

Time, effort, men, machines and capital—all are used to produce the present day products.

---

*Name on request.

Eggshell Parchment

In the January issue, page 19, in the article, "Modernistic Metalwork Design and Finish," mention is made of eggshell, and eggshell parchment. Is there any way whereby eggshell (real) could be softened and cut to any particular shape and applied to a metal ground? Also what is eggshell parchment, and can it be bought in America?—J. J.

The term "eggshell," as you are probably aware, has reference to the finish of the parchment paper used for making lampshades.

This can probably be procured through any of your local paper dealers. A tracing paper sold by the Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill., can also be used for this.

The paper is first prepared by treating with any transparent mineral oil, then by spraying with eggshell lacquer. As for finishing the metal bases to match the eggshell parchment shade—that is merely a matter of spraying the metal with a semi-gloss ivory lacquer.—Kepec Co.

Golf Tees Tumbled Finished

Supplementing the answer to a question published under the above title in April issue, page 84, I would recommend:

First, place the golf tees in a wire mesh basket and dip in a permanent stain* of desired color, and allow to dry two hours.

Second, place stained tees in wooden tumbling barrel and roll for 30 minutes with a half dozen pieces of sponge (about 1-in. in diameter) soaked in orange shel-

* Name on request.

HWC

LACQUERS
and
ENAMELS
Suitable for
Spraying
Brushing
Dipping
on
Wood
Metal
Glass
Fibre
or
Composition

Prices Reasonable

Walker Service with Walker Lacquers

HENRY V. WALKER CO.
714 Division St. Elizabeth, N. J.

CRESCENT BRONZE POWDER CO.

Importers and Manufacturers

Bronze Powders
Bronzing Liquids
Gold and Aluminum Leaf

We carry all shades of bronze powders for spraying, burnishing and striping.

Samples and prices submitted upon request

116-122 W. Illinois St.
CHICAGO

We are offering a complete line of synthetic

RESINS

For Varnish and Lacquer Manufacturers

We solicit your inquiries

KUTTROFF, PICKHARDT & CO., INC.

1150 Broadway, New York, N. Y.

lac; or roll for one hour with a few pieces of beeswax, 1-in. in diameter.

The permanent stain will give a lasting color of deep penetration without raising the grain and the rolling operation will produce the semi-luster, filled finish desired. —A. B. Laboratories.

We notice that on page 84, in the April issue, G. F. A. wanted to know how to obtain a gloss finish on golf tees that are stained or colored by finishing. After allowing barrel to run sufficiently long enough to give the proper color he wants, if he will put small quantities of paraffin oil in the barrel until the desired gloss is obtained, he will find that this spreads very evenly and that his tees will come out with a high gloss finish. This information is not new, but perhaps G. F. A. has not thought about it.—Lakeside Supply Co.

Represents Gilbert Spruance Co. in Jamestown District

The Gilbert Spruance Co., Richmond & Tioga Sts., Philadelphia, Pa., announces: "Beginning May 1st, Mr. John Weidemann of Jamestown, N. Y., will represent The Gilbert Spruance Co. for that locality."

Cook Detroit Branch Moved to New Plant

Mr. Kam N. Kathju, in charge of sales for the Detroit factory and office of the Cook Paint & Varnish Co., Kansas City, Mo., writes: "The Detroit Sales Office has been moved from 6-247 General Motors Bldg., to the Cook Company's new factory 3301 Bourke Ave., telephone Hemlock 1000. The Cook Paint & Varnish Co., now has six factories, located at: Kansas City, Mo.; St. Louis, Mo.; Cincinnati, Ohio; Detroit, Mich.; Fort Worth, Texas; and Houston, Texas. The address of the home office is 1319 Grand Ave., Kansas City, Mo."

ADVERTISING PAGES REMOVED

New Materials and Equipment

Presenting briefly, certain outstanding features of new or improved materials, supplies and equipment which have been developed and made available for use in modern industrial finishing departments

Shut-off Valve Coupling For Air Line

A new application of the by-pass principle is incorporated in the Quick-As-Wink shut-off valve and coupling recently announced by C. B. Hunt & Son, Salem, Ohio. A ¼-in. push or pull on the outer member is the only movement required to turn the flow of air on or off. In combination with Quick-As-Wink couplings, this new valve allows air to be shut off anywhere on the hose line, automatically bleeding air for removal of tools for repairs or oiling. It is claimed that, in spite of the free-swiveling of coupling and valve, they are air tight from 1-oz. to 1,000-lbs. pressure. Quick-As-Wink valves and couplings are made in all sizes from ⅛ to 4-in. and to fit all common types of hose or pipe connections.

Portable Spray Outfit

The Paasche Airbrush Co., 1921 Diversey Pkwy., Chicago, announces a new portable spray outfit which includes a "patented LPAB round or fan sprayer controlled by light, comfortable pistol-grip and trigger action; will furnish from narrow to wide fan spray with low air pressure." Taper friction color control sleeve can be set to give whatever speed and size of spray is best suited for the work at hand. Fine or coarse stipple effects are also easily obtained. Completely interchangeable quality parts; adjustable, handy, clamptight-cover, pressure metal cup is quick to refill and clean.

"It operates on an entirely new working principle, simple and foolproof with no bleeder valves to leak or spill paint, no matter in what position the gun is operated."

The Paasche universal motor air compressor is quiet operating with specially designed silencer and aircooled handle; compact, sturdy and furnishes an even flow of pressure suitable for a light airbrush and sprayer use. Complete with 10-ft. of electric cord, and 12-ft. of 3-16-in. braided air-hose with screw-tight couplings ready to attach to any direct or alternating current lighting circuit.

Stencil decoration in a mural effect and executed with the spray gun is becoming increasingly popular.

Finco

NON-GRAIN RAISING

Water Stain—

requires *no sanding . . . . . no wash coat . . . .* saves 24 hours in the finishing room. One furniture manufacturer saves $1.50 on every dining room suite.

Positively fast to light . . . . made only from water aniline colors. Inquiries solicited. We will be pleased to demonstrate this product or send samples for you to try . . . . Our service department is at your disposal.

Finishing Products Co.
3725 E. 13th St. Indianapolis, Ind.

Hy-Speed

EXPLOSION-PROOF ELECTRIC MIXERS

Clamp to *any* tank and mix *all* liquids

Note Patented "Push Pull" Propeller Action.

MIX QUICKER

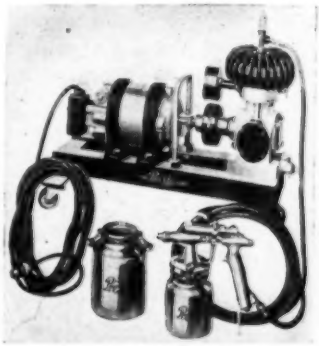
LAST LONGER

COST LESS

ALSOP ENGINEERING CO.
39 West 60th St. New York

New Spray Equipment

The Metal Specialties Mfg. Co., 338 N. Kedzie Ave., Chicago, announces a new all-'round, all-electric, portable spraying outfit—the Presto Model 155. One of the features of this new outfit is its ability to give perfect, high-speed application of lead paints, enamels and other heavy materials as well as oil paints, lacquers, shellacs, varnishes and bronzes.



"No gears, belts or pulleys"

The unique nozzle design completely atomizes these liquids internally eliminating excessive fog and mist. A needle valve adjustment, controlled from the trigger, enables the operator to regulate the size of spray and amount of material applied; or the operator can simply blow air through the gun to remove dust and foreign matter from the surface about to be sprayed.

In addition, the direct drive motor, accurately machined parts and perfect balancing throughout, make the outfit practically noiseless and vibrationless in operation.

The outfit includes interchange-

ADVERTISING PAGES REMOVED

able caps for round or fan spray, two air filters, three seamless containers, 25-ft. of electric cord and 25-ft. of air hose.

Spray Outfits Utilize Automobile as Compressor

The Binks Mfg. Co., 3001 Carroll Ave., Chicago., announces two complete outfits, No. 222 and No. 333.

Both of these units operate from the air pressure of any automobile, truck, or tractor without the use of an air compressor. One simply attaches the air pressure valve in any spark plug opening,

The No. 222 outfit

starts the motor and lets it idle, thereby producing a free passage of air on the downward stroke of the piston. The upward stroke compresses the air and forces it through to the spray gun. The free passage of air on the downward stroke prevents all gases from reaching the cylinder, leaving the compressed air entirely free from gases and oils.

The Binks outfit No. 222 is complete with No. 22 spray gun, air pressure valve and 25-ft. of air hose. The No. 22 spray gun has

In The Aviation Industry

XCEM industrial cleaners are widely used because they do all industrial cleaning jobs *Quicker, Better* and at *Less Cost.*

There is a specialized XCEM cleaner for aluminum parts, which does not attack the metal.

We would like to demonstrate to you why XCEM industrial cleaners are growing in use in all types of industries.

Please Write to

Magnuson Products Corp.

Specialized cleaners for every Industrial Purpose

Hoyt and 3rd St. Brooklyn N. Y.

WAREHOUSES

CHICAGO BALTIMORE DETROIT TOLEDO INDIANAPOLIS ATLANTA MONTREAL LOUISVILLE

Representatives in all Principal Cities

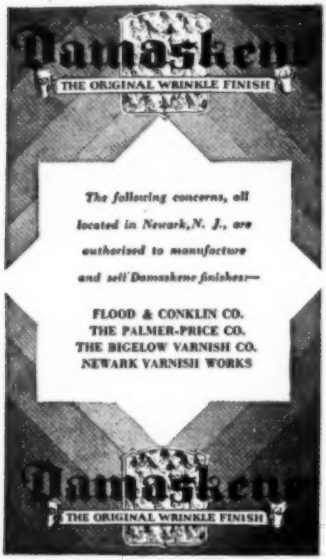
Would you buy a glass diamond if it cost nearly as much as a genuine one?

Why use imitation, or substitute Shellac, when PURE

CADISHELLAC

is not much higher in price?

CADILLAC SHELLAC COMPANY
INC.
Ferndale (Detroit) Mich.


Damaskene
THE ORIGINAL WRINKLE FINISH
The following concerns, all located in Newark, N. J., are authorized to manufacture and sell Damaskene finishes—
FLOOD & CONKLIN CO.
THE PALMER-PRICE CO.
THE BIGELOW VARNISH CO.
NEWARK VARNISH WORKS
Damaskene
THE ORIGINAL WRINKLE FINISH

a sturdy, cast-aluminum cup holder attached to a standard pint Mason jar. The material is syphoned to the nozzle of the gun where extremely fine atomization takes place.

The No. 333 outfit consists of the Binks No. 33 spray gun, pressure material cup, two air pressure valves and 25-ft. of air hose. The No. 33 gun is manufactured to the accuracy of spray guns used in leading finishing plants. The materials are fed through the quart pressure cup to the spray gun by air pressure, producing an efficient flat, fan-shaped spray.

The No. 333 outfit

Dipping Large Work

In a harvesting machine factory where I was employed recently, most of the paint work was done by dipping. In the paint shop, large paint vats—large enough to accommodate the entire assembled frame of a binder—were built into the floor, the top of the vat being at the floor line. A trolley conveyor of the monorail type extended over these vats. A section of the monorail, directly over each

vat was attached to an air hoist in such a way that it could be let down and raised back into place at will.

With this equipment a binder frame, or any other item to be dipped, could be run into place, submerged in the paint by use of the air hoist, then lifted again and run on down the trolley. A low-priced commercial paint was used for this work—one which drained rather freely. As might be expected, the thickness of the paint coat or film would not be entirely uniform. However, it was figured to be good enough for farm machinery, where evidently thorough coverage was deemed of greater value than a perfectly smooth uniform coat.—J. E. H.

Better Spray Guns

The spray gun is the most widely adopted mechanical device for the application of finishing materials of different kinds—probably because its versatility is much greater than that of any other type of painting machine. Advancements along the line of spray guns have not stopped, for I notice that recently one has appeared which is capable of handling three different colors intermittently—particularly handy for decorative work of various kinds.

Also, when the nature of production will justify the initial expense, special painting machines can be made to include groups of spray guns arranged to operate more or less automatically, the articles to be sprayed being slowly revolved or carried past mechanically. It is certain that such applications of the spray gun will increase in the future and that many production problems will be solved in this way.

A real finisher that FINISHES!

ECONOMY DeLUXE SPRAYER

Perfectly balanced, non-tiring, strong, serviceable AND light in weight, (2 lbs.).

A real find for the finishing room!

Designed for suction, gravity or pressure feed.

Soft, uniform spray of lacquers, that leaves a beautiful finish.

There are many good reasons for the popularity of ECONOMY Sprayers.

Coupon or letter will bring descriptive literature and prices.

ECONOMY MACHINE PRODUCTS CO., 5214 Lawrence Avenue, (Jefferson Sta.), Chicago, Illinois.

Name .....

Address .....

City .....State .....

Industrial Finishing

Issued fifteenth of each month. Distributed exclusively to executives and foremen finishers in all kinds of industrial plants where finish coats are applied.

PRACTICAL PUBLICATIONS, Inc.
Publishers

Office; 802 Wulsin Bldg., Indianapolis, Ind. Telephone, Riley 6771. President, A. T. Gaumer; Vice-President and Managing Editor, W. H. Rohr; Secretary, R. E. Sults; Treasurer, E. A. Dosch.

Subscription rates, $2.00 per year in U. S. and possessions; $2.50 per year in Canada and $3.00 per year in foreign countries.

Advertising rates on application.

EDITORIAL

Ventilation; Light

With the approach of warm weather many factory managers may consider that two factory problems at least, namely adequate ventilation and good lighting, are automatically taken care of, inasmuch as windows and doors can be opened to admit fresh air, and the longer hours of daylight provide an abundance of good light for every factory operation. But what effect on finishing operations if certain areas in the room are subjected to direct drafts or unfiltered air that may at times be loaded with dust, smoke or other foreign matter? Also, how about exposure of certain finishing operations, or finished articles to excessive humidity and perhaps at times to prolonged hot sunlight.

Ventilation must be adequate, and it must be controllable, so that a very gentle infiltration of clean fresh air will be admitted to the room from several inlets in sufficient volume to replace what air is continually being exhausted by fans, ventilation flues, etc.; and when the outside atmosphere is excessively laden with moisture, it is essential that some of this moisture be screened out of what air is admitted into finishing and drying rooms.

In regard to daylight, the question comes up: Are the rooms maintained in suitable condition to permit workmen to get the full benefit of real daylight? Naturally, much of the effectiveness of daylight is lost in rooms where a darkened or soiled condition obtains on the walls, windows, ceilings and posts—and in fact on all equipment above say the 3-ft. or 4-ft. level.

It's time to clean up and paint up if the conditions just mentioned are in evidence in any degree whatsoever. Every finishing operation should be performed under the very best lighting conditions possible. Then, if anything happens to be in the least bit unsatisfactory with the surface being worked on, or with the equipment or materials being used, or the results being accomplished, it will show up immediately. Result: better workmanship in the finishing department, less rejects and fewer complaints about finished goods.

Census Information

When the present small difference between profitable and unprofitable operation of a factory depends so much upon what plans or policies are followed by management, the value of information upon which to base present and

ADVERTISING PAGES REMOVED

future activities becomes vitally significant. In this connection it is certain that many concerns will welcome the opportunity to take advantage of what industrial census information becomes available this year and next year.

For example, there will be revealed the increase or decrease in output of each commodity, so that the individual manufacturer can easily determine whether he is getting his share of the business and whether he is holding his own, gaining, or losing, as compared with his industry in general. Also, the ratio between cost of materials and value of products, the output per wage earner, and the ratio of wages to value of output, so that the manufacturer can compare his own ratios with those for the industry as a whole. If these preliminary reports are to be of maximum value, it is pointed out, manufacturers must co-operate by making prompt and accurate returns.

Mechanical Finishing

More and more painting machines of various kinds are coming into wider use. Several different types of machines are now available for practically every class of industrial finishing. The hand brush is gradually being driven into a smaller corner, and while it is probable that we shall never dispense with it altogether, there is a certainty that various types of machines are replacing brushes for most of the work that is on anything like a production basis.

"Sport model" furniture is becoming popular, this idea has been borrowed from the automobile industry.

SALESMEN

Wanted for

FAST SELLING

POLISHES

New line now ready after months of preparation. Includes Auto Polish, Chrome Polish, Furniture Polish and Rubbing Compound (hand and machine).

Beautiful package, attractive prices and discounts that mean quick sales. Write today for full particulars, enclosing 50c if sample is desired.

See Full Page Ad on Page 43

Summers Mfg. Co.

Incorporated

12132 Woodrow Wilson, Detroit

Small and Compact

but efficient and powerful

The most efficient compressor for its size ever built. Small size, weighing 75 pounds, will handle 4-ft. gun...large size, weighing 100 pounds, will handle 7-ft. gun.

Delivers a steady flow of clean air, free from oil, moisture or pulsations. *Write today for price and complete description of this latest development in portable spraying units.*

Air-More Products Corp.

3401 Northwestern Ave.

Indianapolis, Ind.

Classified Advertising

Advertisements under this heading 45 cents a line per insertion, minimum charge, $1.35. In estimating, calculate six words to one line, and add one additional line for heading. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

BARGAIN FOR QUICK SALE

Despatch Gas Enameling Oven, 6' x 6' x 8'4" wall. Like New. A. L. SPRAYER CO., Albert Lea, Minn.

SALESMAN OR SALES EXECUTIVE

Have had 24 years' experience in selling lacquer, varnish and enamels to large industrial plants. Thoroughly familiar with finishing methods. Have a wide acquaintance and following in Chicago and nearby states. Can immediately bring business to any new connection. Can furnish highest references. Address IF-329, care Industrial Finishing.

EXPERIENCED INDUSTRIAL SALESMAN

Wishes to make connection with an A-1 house, representing them in the East. Firm must have line of standard products and be favorably known. Outline proposition and act quickly if interested. Address IF-330, care Industrial Finishing.

FOREMAN FINISHER WANTED

For small finishing department, 4 to 10 men, considerable variety of colors to match on wood. Metal coloring experience also desirable. Small middle-west town, new finishing building and equipment. Describe experience and ability fully. Address IF-331, care Industrial Finishing.

INDUSTRIAL SALESMAN

Wanted by a Massachusetts lacquer manufacturer. Excellent opportunity for man familiar with needs of lacquer consumers in N. E. territory. Address IF-326, care Industrial Finishing.

SEVERAL GOOD SALESMEN

Manufacturer of high-grade furniture rubbing varnishes and lacquers, air drying and baking primers, enamels and varnishes, dipping and spraying, with large expansion program, has opening for several good salesmen with an established standing in the trade. Quality, service and co-operation are our motto, and we have a good proposition to the right man. Address IF-327, care Industrial Finishing.

EXPERIENCED FOREMAN FINISHER

Wishes connection with good firm as demonstrator or salesman. Age 36. Have 21 years' experience at wood finishing; know spraying thoroughly. Address IF-328, care Industrial Finishing.

SALESMAN WANTED

For lacquer industrial trade in Metropolitan District—one who has following, thoroughly conversant with lacquer finishing problems and who can fulfill the capacity of service man when required. We manufacture complete line lacquer finishing materials, varnishes and enamels. This position offers excellent possibilities to one meeting our requirements. Salary or commission basis. KEYSTONE VARNISH COMPANY, 71 Otsego St., Brooklyn, N. Y.

FIRST-CLASS FINISHER FOREMAN

Desires position on western coast. 20 years' experience on high-grade work. Was with large varnish and lacquer house past 3 years as demonstrator and service man. Now located in Oregon. Address IF.332, care Industrial Finishing.

FEW LEFT!

Bound Volumes . . .

INDUSTRIAL FINISHING MAGAZINE

Volume IV—
Nov. 1927—Oct. 1928
Volume III—
Nov. 1926—Oct. 1927

WHILE THEY LAST

$3.00 Per Copy Postpaid

Cash with order.

Practical Publications, Inc.
INDIANAPOLIS, IND.